ACTUS GUIDEBOOK

Accessibility of University Campus for People with Disabilities

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ACTUS project

Accessibility Network for Turkish Greek societies

http://actus.mersin.edu.tr

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GUIDEBOOK

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TABLE OF CONTENTS

LIST OF FIGURES

ACTUS GUIDEBOOK

PREFACE

The ACTUS (Accessible Network for Turkish and Greek Societies) project has been financed by EU in the frame of the programme “Promotion of the civil Society Dialogue between European Union and Turkey”. ACTUS has been created as a project concept and realised by the Aristotle University of Thessaloniki (AUTh) and the Mersin University (MEU). Main aim of ACTUS is to contribute to the creation of an accessible to all University physical environments and also to an accessible educational process.

Overall objectives of the project were:

- to strengthen contacts and mutual exchange of experiences between MEU and AUTh in general
- to ensure better knowledge and understanding of Turkey’s policies considering disability issues and accessibility
- to ensure a better knowledge and understanding of the European Union within Turkey
- to ensure a better understanding of “disability”, “healthy cities” and “universal design” from the general public in the two countries

Specific objectives of the project included:

- establishing and strengthening long-term sustainable cooperation and partnerships between MEU and AUTh Universities on the field of accessibility
- exchange of knowledge and best practices, among Turkey, Greece and the rest of the European Union
- assessing the existing situation concerning accessibility in the two countries in order to motivate national and local authorities to take actions in this field.
- ensuring a better understanding of “disability” and “universal design” from the general public in the two countries

The project had large target groups aimed to be benefited through its actions

- People with disabilities benefited in many respects. The mobility constraints of various target groups were carefully examined, obstacles were identified, and ways to overcome them were proposed in both University and City level. The general public was informed through the program’s actions for the problems faced by a large percent of their fellow citizens and became aware that the benefit of addressing accessibility issues far outweighs the costs.

- Teaching staff of the two Universities had the chance to exchange experiences on accessibility issues from their local perspective and attend common thematic workshops.
- Students of the universities had the chance to attend meetings and seminars which will inform them on the merits of “Universal Design”. They were also informed of practices followed at European Union, Greece and Turkey and the actions needed to achieve an accessible built environment. The project participants hope that the seminars and information campaigns contributed to the creation of a new generation of practitioners (urban planners, environmental designers, and engineers), informed on accessibility issues.
- Practitioners in the two countries had the chance to learn more about “Universal Design”, how to overcome design obstacles, examine the current situation on international and regional level, learn about good practices and how to implement them in their designs, whether these are new or existing ones.
- Through the case study city evaluations, the local authorities had the problems identified for them both on the built environment and structural level. The local authorities are responsible of any actions related to the accessibility of the built environment (open spaces, buildings) and the proposed actions will help them address these matters.
- It should be noted that any action taken targeted at improving accessibility will help all people with mobility constraints (children, the elderly, people with “abnormal” dimensions etc.). According to the figures of the Greek Ministry of the Environment, Physical Planning and Public Works these people can reach about 50% of the population. It becomes obvious that the current proposal targets a large percentage of the general public, and it should be remembered that, as the proposal includes the assessment of the accessibility of a part of Mersin and Thessaloniki, each proposed change implemented will benefit the general public.

The project’s objectives were realized through the following activities:

- Networking activities, evaluation of the accessibility of Universities’ infrastructure and the needs of people with disabilities in education
- Examination of case studies
- Joint research program aiming at the acquisition by the Mersin University of analytical skills and academic know-how
- Establishment and transfer of best European practices and procedures
- Awareness raising activities and dissemination of the research results, creating increased awareness and understanding on disability issues

- Seminars, workshops, meetings and conferences on accessibility issues aiming at students, academics and practitioners (urban planners, environmental designers, engineers), study visits on a predetermined topic, dissemination of info through website, newsletter, local media, publication of manuals and brochures, public opinion surveys

In particular, the following main outcomes have resulted and presented in the form of project deliverables:

- "Tasks" and "Needs" of people with disabilities in education were identified (D1)
- A methodology for the assessment of accessibility offered by academic institutions was developed (D2)
- ACTUS identified good practice examples concerning accessibility of University Campus environments (D3).
- ACTUS evaluated systematically, using the tools developed, the accessibility of both the Mersin University and AUTh University Campuses. Good and bad practices were identified and presented (D4)
- Various Seminars, workshops took place examining several aspects of accessibility, both in Greece and Turkey and their material is available in the form of CDs
- The evolution of the accessibility culture during the several distinct historical periods of Modern Greece and Turkey was examined (D6)
- ACTUS examined the accessibility legislation in Greece, Turkey (D7)
- As students live in the City and study at the University, the City accessibility in International level was examined in ACTUS as an integral part of student's and University life (D8)
- The accessibility of the Cities of Mersin and Thessaloniki was examined and proposals were made concerning the improvement of their accessibility (D9)
- During the whole course of the ACTUS project various dissemination activities took place and special dissemination material was produced (D10).

All ACTUS deliverables and information about activities can be found in ACTUS website http://actus.mersin.edu.tr

This Guidebook is one of the ACTUS deliverables (D11) concerning the good practices to follow and the delineation of the appropriate route for creating, in a visible future, an accessible University environment and educational process.

1. INTRODUCTION

1.1. Background and definitions

World Health Organization defines disability as follows: “Disability is an umbrella term, covering impairments, activity limitations, and participation restrictions. Impairment is a problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action; while a participation restriction is a problem experienced by an individual in the involvement in life situations. Thus disability is a complex phenomenon, reflecting an interaction between features of a person’s body and features of the society in which he or she lives”[1].

ACTUS project focuses on the accessibility of higher education institutes, i.e. Universities, given that education is a right of every citizen, both able-bodied and disabled. The purpose of the Guidebook is to offer the knowledge and expertise, developed in the frame of ACTUS project, to Universities in a simple and applicable form. It is time to pass from research to implementation of certain good practices moving towards accessible Universities providing Education for All.

The term “accessibility” refers to the characteristics of the environment that allow all members of the community to use autonomously, securely and comfortably, the infrastructure, services and goods offered. Accessibility refers not only to physical access, but also to functionality, communication, perception, autonomy and security

1.2. Disability concept in history current trends and disability models

The evolution of accessibility culture was not always progressive. Different cultures and civilizations gave more or less importance to accessibility and to people with disabilities. The importance each society gave to people with disabilities is related to the religious, cultural and economic background of each one.

The idea we have about accessibility is that it gets better and better in an evolutionary process. On the other hand, a closer examination of the situation about the evolution of accessibility culture in Greece and Turkey shows that this is not always the case. According to the religious, cultural and economic background of each society, there are different views that influence the attitudes towards disability and people with disability, not always in an evolutionary way.

Pagan ancient Greek society, for example, had a totally different attitude towards disability and people with disabilities that the Eastern Roman Empire and the Ottoman Empire society had. The individualistic, idealistic and heroic culture of ancient Greece seems that did not have a good influence on accessibility culture. On the other hand, in Easter Roman Empire, the Christian values created an individualistic and social approach in society that, even if not always supported by the state, seems that they

had a good influence on accessibility culture. The same good influence seems that was kept during the Ottoman Empire. Modern Greek and Turkish states were mainly influenced by the European individualistic ideals of French revolution and modern philosophy.

In Modern Greek state and after some decades in modern Turkish state also, the new individualistic values of the French revolution seem that did not have such a good influence since disability was considered to be more a problem of the individual than the society's as a whole. Moreover, the urbanization that the needs of modern economy enforced had also very bad influence on the everyday life of people with disabilities. On the other hand, after the 2nd World War, the same values seen under another prospect had as a result a great change on the accessibility culture evolution, since accessibility was considered to be a nonnegotiable human right of every citizen.

It seems that the reasons that kept Turkey from reaching an acceptable accessibility level have nothing to do with the actual religious and cultural background of the Turkish society. On the other hand, perhaps the uncritical adopting of individualistic western values and moreover, the urbanization of the 20th century, created an unbearable situation for the people with disabilities.

Both Greece and Turkey, should rediscover their own values, accept the positive values wherever they come from and why not, even develop their own accessibility culture based both on western and native values, in order not only trying to catch up with Europe but, why not, even surpassing it.

There are two distinct "models" that have been developed concerning the society's and scientific community's view on disability. Disability may be seen as the result of a physical condition. The problem is located within the individuals and therefore medical interventions are required to provide the person with the skills to function better and to adapt to society. This view is associated with what is generally termed a medical model of disability. The Medical Model of Disability is a fixed model - difficult to change.

Alternatively, the interaction between people and their environment/society may be emphasized. The focus may be on the role of society which does not take into account their needs and causes the individuals -by existing negative attitudes and standards which create environmental, economical and cultural barriers to them- with such differences (physical, sensory, intellectual, psychological etc) to be disabled. This view is commonly associated with a human rights or social model of disability. How a disabled person perceives society and how society perceives a disabled person is what is important. The social model is a liberating model for disabled people, it is not fixed – it can and must be developed and expanded.

This second view is shared by all the ACTUS project participants.

1.3. The Legal background

In Turkey, until recently, there had been no major special regulations that ensured the rights of citizens with disabilities. While special arrangements in the form of recommendations started to appear in legislation in the past two decades, any sanction power was not clearly defined and therefore the application of these regulations could not be enforced. With the acceptance of "Turkish Disability Law" in 2005, Republic of Turkey is experiencing a shift from no law to a state where citizens with disabilities' rights are ensured.

Turkish Disability Law enforces arrangements in all public areas and services for people with disabilities. Republic of Turkey Prime Ministry Administration For the Disabled describes the objectives of Turkish Disability Act as *"prevention of disability; solving problems experienced by people with disabilities in the areas of health, education, rehabilitation, employment, care and social security; undertaking measures to remove barriers which prevent disabled people from participating in social life; and improving independency in every day life activities."*

The Turkish Disability Act has two main parts. In the first part, definitions related with disability, basic principles and regulations related with services for people with disabilities are given. In the second part, new regulations for solving the shortcomings in existing disability-related legislations are stated. The Act also addresses the accessibility issue, stating that all public buildings, roads, pavements, zebra crossings, recreational areas and similar social and cultural infrastructural areas will be made accessible for people with disabilities. During the following year after the Law had been put into force, 16 regulations were published to increase the implementation of the anticipated provisions of the Act[2].

In Greece, the major breakthrough concerning accessibility issues was the creation in 1985 of the Office for studies concerning people with disabilities in the Ministry of Environment and Public Works. Workshops were created which developed the first Greek accessibility guidelines, some elements of which became part of the General Construction Regulations. The guidelines were published in a single tome in 1990 as the "Design for all" guidelines of the Ministry and were further updated in 1996.

The guidelines include chapters concerning:

- Anthropometric elements
- Open spaces for pedestrian use
- Ramps
- Lifts
- Signage
- Entrances

- Public toilets
- Public buildings
- Residences

Since then extensive legislation concerning accessibility provisions has been developed which takes into account the provisions necessary for people with disabilities in public buildings, open spaces and all modes of transport. In higher education, the legislation developed requires certain provisions by the Universities that would facilitate students with disabilities in their studies.

1.4. The design for all concept

Individuals are diverse, differing in age, size, abilities, talents and preferences. It is also known that variations in human abilities such as cognition, vision, hearing and speech, body functions, arm functions, hand functions, mobility may affect usability of products, services and spaces. However, the built environment and accompanying services are designed for “standard” users and therefore do not fulfil the wide range of differing needs of individuals. Individuals that fall into any of the user groups including the individuals with disabilities, elderly, children, pregnant women, mothers with small children, individuals in large or small sizes, travelling people carrying luggage, individuals carrying loads etc., therefore, cannot participate in life activities as equally as others. It is also known that any provisions for inclusion of these user groups benefit all user groups and provide easier use and access for all.

Increase in human longevity and advance of medical technologies help people live longer and critically injured or ill people to survive resulting in more diverse populations. For this reason, there is a growing need for environments and services that offer greater equity, accessibility, and usability for all people. In search for solutions to overcome these issues, the design for all approach has been developed.

The “design for all concept” is an umbrella term that unites concepts of inclusive design, adaptive environments, universal design, barrier-free design, accessible design. Even though there are subtle differences in definitions of these concepts, the main idea of all is that our built environment and services should be designed in a way that all people, regardless of mobility, age, gender, culture, size, sensory functionality, and body functions can access and use the environment and participate in life activities equally to the greater extent possible. Nowadays, universal design notion is more commonly associated with “design for all” concept and is interchangeably used.

The Center for Universal Design at North Carolina State University defines universal design as “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design”.[3]

In order to specify concretely the design for all concept, principles of universal design has been developed. There are seven principles for universal design which are: (1) equitable use, (2) flexibility in use, (3) simple and intuitive design, (4) perceptible information, (5) tolerance for error, (6) low physical effort, and (7) size and space for approach and use.

Equitable use principle aims designs that are "useful and marketable to people with diverse abilities"[4]. This principle implies that identical means of use should be provided for all users and, in cases where this is not possible, the means provided should be equivalent. Privacy, security, and safety provisions should be equally available for all users. Designs that appeals to all users should be aimed. Such an approach will prevent or keep segregation of users with different abilities to minimum. For example, rather than providing an accessible entrance separate from the main gate, an entrance space with a sensor type automatic door where all users enter the building from the same space by same means conforms with equitable use principle. Similarly, an elevator located next to an escalator will help prevent segregation among users with different mobility levels.

Flexibility in use principle refers to design that "accommodates a wide range of individual preferences and abilities"[5]. Providing alternate choices for the same use is fundamental for this principle. Designs that give access and use for users with different attributes, that offer adaptability to the user's pace and that facilitate the user's accuracy and precision should be aimed. For example, devices than can be used either left- or right-handed and be grabbed with small amount of force will give different options in use and thus will provide flexibility in use. Handrails on both left and right sides of a walkway, or double leaf doors will provide safety for both left-and right handed users. Grab bars located at multiple heights in showers or bathtubs will allow for both seated and standing use.

Simple and intuitive design principle suggests that "use of the design is easy to understand regardless of the user's experience, knowledge, language skills, or current concentration levels"[6]. Designs with no unnecessary complexity, that are consistent with user expectations and intuition, and that can accommodate variety of literacy and language skills form the basics of this principle. Similarly, in simple and intuitive designs, available information should be consistent with its importance and effective prompting and feedback in the use process should be provided. For example, single level faucets are simple and intuitive to use and use of icons in can reduce complexity for users.

Perceptible information principle is defined as "designs that communicate necessary information effectively to the user regardless of ambient conditions or the user's sensory abilities".[7] Uses of alternate modes, providing adequate contrast with the surroundings are important factors that will maximize legibility in transferring the essential information. Providing compatibility with a variety of techniques or devices used by people with sensory limitations is also essential for this principle. For example, some ticketing devices for public transport machines have push buttons for audio instructions providing users with alternate forms of communication.

Tolerance for error principle refers to designs “minimizing hazards and adverse consequences of accidental or unintended actions”[8]. Providing warnings of hazards and danger and ability to remove the hazard caused by unconscious action are key elements in offering tolerance for error. Tolerance for error can be provided in designs by placing mostly used elements in most accessible locations and using features that are fail safe. Undo command in most computer software and kerbs used at sides of ramps preventing slipping off are basic example for tolerance for error.

Low physical effort principle defines designs that can be “used efficiently and comfortably and with a minimum fatigue”[9]. Designs that can be operated or used with minimal amount and repetition of physical effort where neutral body position can be sustained translate into low physical effort designs. Lever type door handles that can be opened with fist or elbow with no requirement of significant force to be applied are examples for low physical effort design.

Size and space for approach and use principle means that “appropriate size and space is provided for approach, reach, manipulation, and use regardless of the user’s mobility, posture or body size”[10]. Providing designs that can be reached by all users, standing or seated, by all users with different hand or grip sizes should be aimed for this principle. Important elements lined at sight level for all users, wider approach spaces for users with different attributes can help to fulfil this principle. Lower counter sections at information desks and use of full length transparent surfaces at the side of the doors help reach and visibility for users with different heights.

Whereas these principles are important in specifying concretely the “design for all concept”, it should be noted that all principles may not be applicable to all designs and may need contextual modifications. Nevertheless, they provide guidance in creating environments and products welcoming all users; and the main goal in designing for all should be providing inclusion of all people by good, equitable, and accessible designs.

1.5. People with disabilities and higher education

People with mobility impairments, visual, hearing, or speaking impairments, intellectual disabilities and people who suffer from asthmatic and allergic diseases often face barriers in accessing the Universities’ built environment and services.

Barriers are factors in a person's environment that, through their absence or presence, limit functioning and create disability. These include aspects such as a physical environment that is inaccessible, lack of relevant assistive technology, and negative attitudes of people towards disability, as well as services, systems and policies.

In short, accessibility is a combination of a provision of adequate physical access for all, and ensuring the provision of equitable services and that all visitors will have a proper comprehension of the environment

The Convention on the Right of Persons with Disabilities of the United Nations (2006) recognized accessibility as important as a means to empowerment and inclusion. According to the convention access must be ensured to Education (article 24)

In article 24 the convention states that, through the recognition of the convention:

”1. States Parties recognize the right of persons with disabilities to education. With a view to realizing this right without discrimination and on the basis of equal opportunity, States Parties shall ensure an inclusive education system at all levels and lifelong learning directed to:

> The full development of human potential and sense of dignity and self-worth, and the strengthening of respect for human rights, fundamental freedoms and human diversity;
>
> The development by persons with disabilities of their personality, talents and creativity, **as well as their mental and physical abilities, to their fullest potential; Enabling persons with disabilities to participate effectively in a free society.**

2. In realizing this right, States Parties shall ensure that:

> a) Persons with disabilities are not excluded from the general education system on the basis of disability, and that children with disabilities are not excluded from free and compulsory primary education, or from secondary education, on the basis of disability;
>
> b) Persons with disabilities can access an inclusive, quality and free primary education and secondary education on an equal basis with others in the communities in which they live;
>
> c) Reasonable accommodation of the individual's requirements is provided;
>
> d) Persons with disabilities receive the support required, within the general education system, to facilitate their effective education;
>
> e) Effective individualized support measures are provided in environments that maximize academic and social development, consistent with the goal of full inclusion.

3. States Parties shall enable persons with disabilities to learn life and social development skills to facilitate their full and equal participation in education and as members of the community. To this end, States Parties shall take appropriate measures, including:

> a) Facilitating the learning of Braille, alternative script, augmentative and alternative modes, means and formats of communication and orientation and mobility skills, and facilitating peer support and mentoring;

b) Facilitating the learning of sign language and the promotion of the linguistic identity of the deaf community;

c) Ensuring that the education of persons, and in particular children, who are blind, deaf or deaf blind, is delivered in the most appropriate languages and modes and means of communication for the individual, and in environments which maximize academic and social development.

4. In order to help ensure the realization of this right, States Parties shall take appropriate measures to employ teachers, including teachers with disabilities, who are qualified in sign language and/or Braille, and to train professionals and staff who work at all levels of education. Such training shall incorporate disability awareness and the use of appropriate augmentative and alternative modes, means and formats of communication, educational techniques and materials to support persons with disabilities.

5. States Parties shall ensure that persons with disabilities are able to access general tertiary education, vocational training, adult education and lifelong learning without discrimination and on an equal basis with others. To this end, States Parties shall ensure that reasonable accommodation is provided to persons with disabilities."

Both Turkey and Greece have signed the convention in 2007. However, neither of them has signed the optional protocol, which recognizes the competence of the Committee on the Rights of Persons with Disabilities to receive and consider communications from or on behalf of individuals or groups of individuals subject to its jurisdiction who claim to be victims of a violation by that State Party of the provisions of the Convention.

In essence, two major subjects should be examined, and these were the main subject of the ACTUS project. The first one concerns the accessibility of the transport chain and the infrastructure for people with disabilities, as well as the provision of equal services to people with mobility constraints in general, while the second one concerns accessibility of the educational process itself. This means that the accessibility of open spaces, public transport, buildings, information concerning mobility, services provided as well as accessibility in attending lectures, studying, taking exams, etc should be examined.

2. PEOPLE WITH DISABILITIES IN HIGHER EDUCATION AND THEIR NEEDS

People with mobility impairments, visual, hearing or speaking impairments, intellectual disabilities and people who suffer from asthmatic and allergic diseases often face barriers in accessing the Universities' built environment and services.

In what follows the needs of major groups of people with mobility constraints are examined, concerning both the built environment and the educational procedure. To identify these needs a "task model" was created, analysing the main tasks and the secondary tasks the student would have to perform. Furthermore, problems that people with disabilities face in this procedure are identified and their requirements, depending on their disability, are presented. Here, due to space limitations, the needs of only to main groups i.e. people with mobility (wheelchair users, people with restricted mobility) and sensory impairments (people with sight problems, people with hearing and speaking problems) are presented. Further information, including references for other groups of students, such as students with cognitive impairments or dyslexia, are included in ACTUS deliverable 1 "Tasks and Needs of people with disabilities in higher education".

2.1. Physical environment and accessibility needs

Main task

- Reaching the University facilities

Subtasks include

- Getting information from home (through telephone, internet or other means) about accessible transportation, accessible services at the university, lectures, timetables
- Walking to public transport stations/ stops or to a parked private vehicle
- Waiting at the station/ stop
- Getting necessary information at the station/ stop
- Buying tickets for public transport
- Getting on the public transport vehicle
- Traveling securely and comfortably
- Receiving necessary information inside the vehicle
- Accessibility in case of emergency (both at the stations and inside the vehicle)
- Arriving at destination and getting off the vehicle
- Arriving at a parking spot and leaving the vehicle, if a private one is used
- Walking from public stations/ stops or public parking areas to the entrance of the University's Campus

Problems different groups of people with disabilities might face include the following:

Wheelchair users and people with mobility impairments

- Access with public transport
- Inaccessible routes to and from stations/stops
- Inaccessible stations/ stops
- Getting on and off the public transport vehicle (lack of level access – not sufficient door width)
- Buying tickets for public transport, inside or outside the vehicle (difficult to operate automatic ticket machines with buttons placed at high level)
- Travelling securely and comfortably (lack of designated space inside the vehicle for wheelchair users, lack of proper safety equipment – seatbelts etc.)
- Accessible exits in case of an emergency (at the stations and inside the vehicle)
- Access with private car
- Lack of appropriate parking spaces or spaces occupied by other users
- Problems related with the parking areas – surrounding open spaces

People with visual impairments

Visually impaired persons either have different degrees of reduced sight or they are blind. They have difficulties in finding their way in a new environment and therefore surroundings must be designed in a simple and logical way.

- Difficulty to acquire visual information concerning time schedules, lines provided at stations, stops, internet, emergency alarms etc.
- Inability to recognize the approaching vehicle
- Difficulty in identifying and operating machines and equipment
- Difficulty in identifying the vehicle's doors
- Difficulty in recognizing approaching stops inside the vehicle
- Accessible exits in case of an emergency (at the stations and inside the vehicle)

People with hearing impairments

Hearing impaired persons are either deaf or they have reduced hearing. Hearing impaired persons need a good sound environment and good acoustics. Clear visual information is of importance to hearing impaired persons, as they will often use their sight to communicate. (Use of texts and pictograms) In most cases people with hearing problems face difficulties with written texts as there is a delay in acquiring language in early childhood and sign language can be

considered their main language.

- Difficulty to acquire audible information concerning time schedules, lines provided at stations, stops, internet, alarms in emergency cases etc.
- Difficulty in recognizing, approaching stops inside the vehicle
- Difficulty in communicating

People with speech impairments

There are various types of speech impairments that can occur singly or in combination. The causes can also vary.

Speech impairments range from problems with articulation or voice strength to an inability to speak at all. Often those with communication difficulties have alternative methods of expressing their thoughts, feelings and ideas.

- Difficulty in communicating

Requirements of people with disabilities
For all people with disabilities, the application of simple and logical design in the built environment and all the equipment, machines, technologies used would be beneficial.

Wheelchair users and those with mobility impairments
Access to transport

- Accessible transport services connecting students' residents with the University (comprising accessible stops, stations, vehicles, suitable information, trained personnel)
- Access with private car
- Suitable parking spaces located close to the buildings' entrance, with an accessible "corridor" linking them to the buildings. The designated parking spaces should be easily identifiable and their use only by people with mobility constraints should be ensured (e.g. a "booking" system could be provided).

People with visual impairments
Access to transport

General

- Use of info kiosks designed properly for people with sight problems giving information about time schedules etc.

- Audible information provided both at the stops and inside the vehicle. This should include audible info about the approaching vehicle provided at the stop and info about the following stops provided inside the bus.

People with low vision

- Clear signage with good contrasts between text/symbols and background
- Easy-to-read text (in terms of colour, font-size, font-type etc.)
- Use of colour contrast at equipment and furniture at stations, vehicles etc

People with hearing impairments

Access to transport

- Clear visual information
- Extensive use of pictograms
- Text information using simple language
- Use of info kiosks designed properly giving information about time schedules etc.
- Visual information provided both at the stops and inside the vehicle. This should include info about the approaching vehicle provided at the stop and info about the following stops provided inside the vehicle.
- Induction loops can be provided at stations for people using hearing aids. (An induction loop system helps people who use a hearing aid)
- Visual alarm in case of an emergency

People with speech impairment

Access to transport

- Pre-journey information
- Trained personnel in stations and the vehicle (driver) to provide them info required with patience

Main Task

- Reaching educational facilities through the University Campus' open spaces

Problems different groups of people with disabilities might face:

Wheelchair users and people with mobility impairments

- Lack of level access
- Long walking distances

- Problematic surfaces (surface materials that are not slip-resistant etc.)
- Lack of maintenance
- Obstacles

People with visual impairments

- Difficulty to acquire visual information
- Difficulty in orientation
- Difficulty in identifying obstacles
- Absence of free walking paths in height and width
- Absence of proper signage
- Lack of level access
- Long walking distances
- Problematic surfaces and lack of maintenance

People with hearing impairments

- Difficulty to acquire audible information
- Absence of proper and clearly conceivable signage
- Difficulty in perceiving oncoming cars (especially dangerous if no sidewalks or pedestrian zones are provided)

Requirements of people with disabilities

General Requirements

- Simple and logical physical design and the provision of a safe environment
- Provision of a free walking area (1,5m. width and 2,2m. height)

Wheelchair users and those with mobility impairments

- Accessible open spaces
- Short walking distances connecting parking spaces, public transport stations and the University's facilities
- Pedestrian areas with the minimum possible slope (less than 5%)
- An organized network of pedestrian zones in University campuses
- Solid, even, anti-skid surfaces, easy to maintain and slip resistant even when they are wet

- Provision of free areas (0,8m x 1,3m.), suitable for use by wheelchair users at narrow sidewalks. These should be created at 100m. intervals.
- Provision of benches at the same intervals
- Ramps at level changes (1.5m width) and crossings (2,5m minimum width)
- Median at least 1.5m. wide
- Provision of suitable handrails when required (double handrails, easy to grip, at 0,7 and 0,9m. high)
- Suitably designed staircases (suitable handrails at both sides, rise less than 17 cm, tread depth more than 25 cm.)

Needs of people with visual impairments

General

- Guidelines and tactile markings of the surface. Use of Tactile Ground/ Surface Indicators (when required and properly implemented) Tactile warnings at stairs and ramps signifying danger
- Accessible pedestrian areas devoid of obstacles, horizontally and vertically
- Every piece of furniture or equipment should be projected on the ground so that can be identified by cane users
- Areas of specific scents and sounds for better orientation, combined with appropriate training, can prove useful
- Audible signage at pedestrian crossings
- Use of info kiosks designed for people with sight problems with audible, Braille info

People with low vision

- Creative use of colour contrast.
- Clearly marked lanes separating cyclists from pedestrians
- Clear signage with good contrast between text/symbols and background
- Easy-to-read text (concerning font type, letter size etc.)

Needs of people with hearing impairments

- Easily identified pedestrian zones. It should be remembered that hearing impaired people can only visually identify oncoming traffic.
- Clear visual information
- Good lighting conditions (facilitating the use of sign language and lip-reading)
- Clearly marked lanes separating cyclists from pedestrians

Main task

- Using the University's installations

Subtasks

- Getting in the desired buildings
- Moving inside the buildings, reaching different levels
- Using all the building's equipment
- Using the building's facilities (libraries, secretariat, toilets, dormitories, etc.)
- Reaching classrooms, labs, studios and attending lectures, practices etc
- Getting all the neccessary information inside the building
- Providing all the neccessary equipment and infrastructure needed for assessment – examinations during the academic year
- Getting out safely in case of an emergency

Problems different groups of people with disabilities might face:

Wheelchair users and those mobility impairments

- Lack of accessible entrance
- Difficulties at horizontal movement (narrow corridors, obstacles, different levels etc)
- Difficulties at vertical movement (lack of elevators, elevators with not sufficient dimensions and accessible buttons, not properly designed staircases)
- Difficulty in using the building's equipment (doors, buttons, grab rails, machines located inappropriately)
- Difficulties in using particular services and facilities (inaccessible canteens, amphitheatres, inaccessible toilets)
- Lack of accessible emergency exit

People with visual impairments

- Difficulty to acquire visual information
- Difficulty in orientation
- Difficulty in using the building's equipment (doors, buttons, machines)
- Difficulties at horizontal movement (obstacles, lack of proper signage etc)
- Difficulties at vertical movement, operating elevators, using staircases etc
- Difficulties at using particular facilities (canteens, amphitheatres)

People with hearing impairments

- Difficulty to acquire audible information
- Difficulty in communicating
- Lack of proper illumination to assist lip-reading and sign language use
- Lack of proper acoustics – sound proofing
- Lack of visual information

Requirements of people with disabilities
General requirements

- Low physical effort
- Safe and comfortable design
- Staff support

Wheelchair users and those with mobility impairments

- Firm and even surfaces should be used, easy to maintain and slip resistant
- Level access to buildings should be achieved
- Automatic or easy-to-operate doors
- Free spaces in front of doors, elevators etc. Main door, preferably sheltered
- Wide doors (more than 90 cm. clear width in order for them to be operable by wheelchair users, more than 1,2m. for main doors)
- Lift to all floors, suitable for use of wheelchair users. It is preferable if a minimum of two lifts are operating at the same time in each building, in order to ensure that at least one is operable during maintenance. Lifts should have suitable dimensions and buttons located at appropriate height
- A minimum width of 3,0 m. in all corridors leading to educational spaces is preferable. A minimum of 1,8m is required when these only lead to offices
- Steps should be minimally used. A ramp or lift should be constructed as an alternative
- Staircases with landings at every 10 – 12 steps and suitable handrails at both sides rise less than 17 cm tread depth more than 25 cm.
- Suitable restrooms for people with disabilities (toilets and washbasins with proper equipment at appropriate height, support rails, 1.5m free space etc)
- Easily accessible emergency exits (level access, proper width, etc.)
- Appropriate grab bars and rails (double handrails, easy to grip, at 0,7 and 0,9m. high) installed, at long corridors, staircases, side of ramps etc.
- Appropriate placing of handles and control buttons
- Appropriate placing of desks, telephone booths, blackboards, laboratory equipment, signage etc (placed between 90 – 120 cm from floor)
- A minimum of two spaces reserved for wheelchair users should be provided in

each amphitheatre (preferably located near the emergency exits and provided with suitable writing surface). Also, the rostrum should be accessible

- Dormitories with rooms that provide enough space, accessible toilets with shower and proper equipment.
- Accessible pools and sports halls with suitable locker rooms, showers, pool access, fitness rooms and equipment
- Accessible libraries with accessible desks, computers etc. An assistant should always be available.

People with visual impairments

General

- Use of info kiosks designed properly for people with sight problems (audible, Braille info)
- Visible, audible and tangible information in signs etc. (eg. Braille)
- Alternative information formats, such as audiotapes, large print, electronic format that can be accessed off campus
- Alternative formats and special software provided at libraries (word recognition system etc.)
- Audible info in case of an emergency
- Opportunity to attend mobility training at the beginning of the academic year
- Provision of proper acoustics, since people with sight problems relate more on sounds
- Grab bars at stairs and ramps (double handrails, easy to grip, at 0,7 and 0,9m.)
- Free entrance of guide dogs. This requirement is of general use for all service animals serving people with disabilities

People with low vision

- In transparent surfaces, safety materials with obvious signage should be used
- Good lighting conditions - anti-glare light
- Creative use of colour contrast. Contrasting colours on doors compared to floors, contrasting coloured and raised buttons in equipment etc.
- Clear signage with good contrasts between text/symbols and background
- Easy-to-read text (concerning font type, letter size etc.)

People with hearing impairments

- Clear visual information is required. Therefore, the shape and layout of rooms, the texture of walls, ceilings and floors and interior decoration in general are important elements for people with hearing impairments.

- Extensive use of pictograms
- Good lighting conditions (facilitating the use of sign language and lip-reading)
- Text information using simple language so that people with different levels with acquired language can understand.
- Microphone set that are compatible with induction loop systems that aid people with hearing problems
- Good acoustics for people with low hearing, minimum background noise
- Possibilities of using personal audio systems
- Possibilities of using sign language or screen reader
- Visual emergency alarm systems

2.2 Education process and accessibility needs

The second major issue concerning accessibility in higher education examined is the accessibility of the educational process itself. This includes attending lectures, studying, taking exams, other assessment methods etc. It should be noted that there might be a need for the provision of special curricula, if this is deemed necessary and possible. All provisions and alterations on the regular curriculum as well as the assessment process which concern people with disabilities should be clearly stated

This document focuses on arrangements that may be required by students on the most common disabilities encountered in Higher Education. Of course it cannot cover all the arrangements that could be needed by students. Each student should be considered on an individual basis and contacted in order to adapt the educational procedure to his/ her particular needs.

Training and informing educators and staff

In order to achieve accessibility at the educational procedure, University staff should be trained and informed about the particular needs of students with disabilities. This includes the University's technical office, the Accessibility Office and the University's Social Committee (if one exists), general personnel etc. This training should focus both on the general notion of disability as a social phenomenon as well as the specific difficulties students with disabilities face in their academic life.

The training should be continuous and adjusted to the specifics of each professional group. Thus, University's building/ construction/ technical office staff should be informed about accessibility of the built environment and accessibility of the University technologies. Likewise, professors should be informed about the specific needs of students with disabilities at the educational procedure and how these affect their

academic abilities etc. Furthermore, the training should focus on major groups of people with disabilities trying to group their needs, so that the notion of specific adjustments at the educational procedure helping large groups of students is realized.

It should be noted that each student may have specific needs that result not only of his/her disabilities but also of his/her previous experiences of education. In many cases, students with disabilities may come to the University from an educational background, where they received continuous support. Thus, the University may need to create a support team, perhaps at volunteer level, in order to assist these students, at least at the beginning of their studies. Furthermore, necessary adjustments should be made to the curriculum, if these are deemed necessary, with the condition that they do not change major goals of the program.

Main task

- Attending a lecture, lab, studio etc

Subtasks

- hearing the lecturer or broadcasts, other students asking questions etc.
- visually perceiving and understanding texts, symbols, diagrams, icons on the blackboard or on projections
- understanding the lecturers
- taking notes during lectures
- participating in discussions
- asking questions
- use of laboratory equipment
- special outdoor training

Problems different groups of people with disabilities might face:

Wheelchair users and students with mobility impairments

- problems in taking notes (in case they have restricted hand mobility)
- difficulties in using equipment related to educational program
- difficulties in attending outdoor educational activities

Students with visual impairments

- difficulties in visually perceiving and understanding texts, symbols, diagrams, icons on the blackboard or on projections
- difficulty in perceiving the lecturer's face and expressions
- problems in note keeping
- difficulties in using equipment related to educational program
- difficulties in attending outdoor educational activities

Students with hearing impairments

- difficulty in hearing the lecturer or broadcasts, other students asking questions etc.
- difficulty in taking notes, as the students usually hear the lecturer and write notes simultaneously
- difficulty in communicating

Students with speech impairments

- Difficulty in communicating

Requirements in attending lectures

General requirements

- Trained personnel
- Use of assistive technology, such as the use of voice recognition software in note taking, Braille printer etc. etc.

Wheelchairs users and students with mobility impairments

- Assistance provided to students with poor motor skills in note taking etc.
- Specific desk arrangements that allow wheelchair users to use

Students with visual impairments

- Books (main course book and assistive reading material) in Braille, large print or audible format (depending on individual student's needs)
- Provision of audible information and updates in buildings such as announcements, timetables, schedule changes etc.
- Creation of an accessible website, which will be regularly updated in order to include all necessary information.
- Assistance in note taking during lectures (recording or personal assistance)
- No use of red and green ink (for colour-blind people)
- Avoid the verbal descriptions of visual concepts or descriptions based on colour differences during lectures
- Description of visual material used during lectures

Students with hearing impairments

- Lots of visual information. (not excessive and as clear as possible)
- Use of assistive technology in class (hearing aids, microphone equipment, subtitle generator etc.)
- Sign language interpreter available at every lecture. If possible, one who is familiar with the specific terminology used at the lecture, as the sign language lacks in scientific vocabulary

Main task

- Assessment of the student's knowledge of each subject

Subtasks

Written tests

- writing texts
- understanding written texts
- visually perceiving and understanding texts, symbols, diagrams, icons, written instructions
- producing essays

Oral tests

- hearing oral instructions or undertaking oral tests
- asking questions

Other assessment

- use of laboratory equipment/ class/ studio equipment
- special outdoor assessment e.g. Field surveys, field trips

Problems different groups of students with disabilities might face:

Wheelchair users and students with mobility impairments

- problems in writing (in case they have restricted hand mobility)
- difficulties in using laboratory equipment
- difficulties in attending outdoor educational activities

Students with visual impairments

- difficulties in perceiving and understanding texts, symbols, diagrams, icons
- problems in writing texts
- difficulties in using laboratory equipment
- difficulties in attending outdoor assessment

Students with hearing impairments

For students who have a hearing loss, the main problem in the assessing procedure is that written and spoken language can cause significant problems. This can manifest itself in the student having a limited vocabulary, poor grammar and syntax, and a general poor grasp of the use of language. In addition, for students who use Sign Language, their mother tongue will, in most instances, be their second language, and sign language uses different syntax compared to written language.

- difficulty in hearing instructions
- difficulty in understanding written texts, as in many case the sign language is

the first language of the student

- difficulty in communicating orally

Students with speech impairments

For students with speech impairments stress and attention can exacerbate the impairment. Patience, understanding and getting to know the individual are the best ways to make the individual more at ease. Providing opportunities to talk in small non-threatening groups can relieve many of the stresses, which make the problem worse.

- Difficulty in communicating orally

Requirements in assessment

Students with disabilities may be penalized in the assessment process due to their disability. The allocation of extra time, or the use of a separate room in which to undergo the assessment, can be proved beneficial to students with a wide range of disabilities. For certain students with disabilities rest breaks during formal assessment/ examinations should be considered if required by the student.

Students to whom extra time has to be allocated during their examinations should normally be asked to take exams in a separate room from the main body of the students to minimise the time lost due to disruption when other students enter or leave the examination room.

Apart from the difficulties arising from the impairments listed in the following section, there are other problems that may arise during studies. For many students the effects of stress will be a key factor to consider, whilst for others the effects of medication they might be taking, may cause problems that may need to be taken into account. Each application for alternative assessment procedures will be considered on an individual basis to ensure that the student is not disadvantaged in the assessment process.

Students who have mobility impairments

The major difficulties encountered will be in physically accessing the room in which the assessment will take place and using traditional (pen/paper) methods during the examination (for people with poor motor skills).

Students may require:

- to be supported by a reader or amanuensis
- to use adaptive technology
- to have alternatively presented papers (e.g. on audiotape or suitably equipped computer)

Students with visual impairments

Not all students who have loss of sight require the same adjustments to the

assessment process. Not all students are Braille users (only a small percent of blind people in general are Braille users – 10% according to the National Federation for the Blind in the USA) and many will prefer to have material presented in audible form.

Partially sighted people usually don't use Braille and use texts in large print.

- thesis in alternative format
- Should be able to request material in Braille, large print or audiotape.
- May be permitted to undergo formal assessment
- using adaptive technology
- using an amanuensis (helper in writing) or reader
- Should be able replace written exams and essays with oral exams
- Use of computers in exams
- Special adaptations in exam sheets, if required

Students with hearing impairments

- Some adaptation of terminology may be required, with the help of a sign language interpreter
- Students should be permitted to have the examination paper 'overwritten' to modify the carrier language
- Students should be permitted to have questions communicated in sign language
- A sign language translator should be always available
- The examination papers provided should be clear and simply laid out. If considered appropriate, an examination paper that does not require extensive use of written language should be provided (eg. use of multiple choice questionnaires)
- Students should be permitted to have questions communicated by oral rephrasing or lip speaking
- Students should be permitted to take the exams in a separate room, if required

Students with speech impairments

- Students should be permitted to have questions communicated in alternative formats (written, sign language etc)
- A sign language interpreter should be always available if required
- Students should be permitted to take the exams in a separate room, if required
- Students should be permitted to use extra time if they asked for oral assessment
- Students should be able to request replacing oral exams by written exams and essays
- During oral assessments questions should be asked in such a way that short answers should be needed
- During oral assessments the examiner should adopt slow rhythms in his own speech

2.3 Social and psychological needs

The social and psychological needs of students with disabilities in most cases do not differ from the needs of the rest of the students, thus any provisions by the University would be beneficial for all. Provisions to support student life could include:

- Access to medical services and specialists if such a service is provided by the University
- Psychological support, available through the University. This service can prove useful to a variety of students facing personal difficulties.
- Trained personnel on the particular needs of people with disabilities
- Sport teams and training targeted to people with disabilities.
- Special care by the University, so that students with disabilities can successfully complete their practical exercise, if that is required by the school's curriculum. This implies that an appropriate accessible working environment should be found by the University.
- Cooperation with University schools abroad so that students with disabilities can take part in students' exchange programs. The University should be responsible to identify whether the foreign University is cooperating with is accessible to students with disabilities.
- Creation of volunteer teams which will assist students with disabilities in their everyday educational tasks
- Fully accessible website, easy to be accessed from people with disabilities, including specific reference to the provisions to students with disabilities
- All information concerning educational activities, books and other material should be provided in alternative forms and be available through the University's website and handed to students with disabilities in print or through e-mail.
- Cooperation with associations of people with disabilities at local and national level
- Unobstructed access to all forms of social activity occurring in the University's premises should be ensured
- Possibility to use a specially arranged rest room, if and when required. This could be combined with a changing facility.

3. THE NATIONAL AND INTERNATIONAL STANDARDS AND GUIDELINES

Introduction

Developing a design guide or a standard is a multidimensional and specific issue that may not be identified unless practitioners face with specific problems. CEN/CENELEC Guide 6 (2002) stated necessity of developing design standards especially related to the needs of people with disabilities. “For many years, standards bodies at the national and international level have addressed the needs of persons with disabilities in the development of specific standards in the area of assistive technology and accessible building design. However, the needs of older persons and persons with disabilities are not being adequately addressed when other relevant standards for everyday products and services are written or revised” (CEN/CENELEC Guide 6, 2002). According to International Organization for Standardization “Accessible Design” is a subset of “Universal Design” where the term Universal Design covers the design of products for all people and encompasses all design principles. “Accessible Design, that focuses on principles that extend the standard design process to those people with some type of performance limitation” (ISO-IEC Policy Statement, 2000: 5). According to Policy Statement ISO and IEC national members should:

> -promote standardization work, to ensure that products, services and environments are
>
> -available, accessible, usable and safe for all consumers, including older persons and people with disabilities, by adopting the general concepts of Universal Design or Accessible Design when developing and revising standards;
>
> -raise awareness and provide information for standards developers on the issue of Accessible Design, taking into account ISO/IEC Guide 71 on addressing the needs of older persons and people with disabilities in standards work (ISO-IEC, 2000: 7)

The main design guide, which provides a general framework for guideline developers and practitioners is published by International Organisation for Standardisation in 2001, is *ISO/IEC Guide 71:2001 Guidelines for standards developers to address the needs of older persons and persons with disabilities*. That guideline describes needs of people with disabilities, and general principles and issues for in order to develop specific design standards. That guide provides guidance to writers of relevant International Standards on how to take into account the needs of older persons and persons with disabilities. That guide is developed to apply to products, services and environments encountered in all aspects of daily life and intended for the consumer market and the workplace:

> “1-describes a process by which the needs of older persons and persons with disabilities may be considered in the development of standards,
>
> 2-provides tables to enable standards developers to relate the relevant clauses of a standard to the factors which should be considered to ensure that all abilities are addressed,

3-offers descriptions of body functions or human abilities and the practical implications of impairment,

4-offers a list of sources that standards developers can use to investigate more detailed and specific guidance materials."

CEN/CENELEC Guide 6 (2002) G*uidelines for standards developers to address the needs of older persons and persons with disabilities* is a comprehensive and detailed reference guide for standards developers and designers. That guide specifies needs of people with disabilities and identifies principle factors and design issues. The following table specifies factors and corresponding human abilities.

Table 1: Factors to consider in clauses to the built environment (buildings)

Factors to consider in clauses to the built environment (buildings)	**Human abilities**											
	sensory					**Physical**					**cognitive**	
	seeing	**hearing**	**tuoch**	**Taste/ smell**	**Balance**	**dexterity**	**manipulation**	**movement**	**strenght**	**voice**	**Intellect/memory**	**Language literacy**
Alternate format	■	■	■	■						■		■
Location/layout	■				■	■	■	■	■		■	■
Lighting/glare	■				■							
Colour/contrast	■										■	
Size/style of font	■											
Clear language	■	■									■	■
Symbols/drawings	■										■	■
Laudness/pitch		■										
Slow pace		■									■	■
Ease of handling	■				■	■	■	■	■			
Surface temperature	■	■	■								■	■
Accessible routes	■				■			■	■		■	■
Surface finish	■		■		■	■	■	■	■			
Non-allergic/toxic				■								
Acoustics		■										
Ventilation												
Fire resistance	■			■				■				

Shaded boxes represent applicable factors.

Source: CEN/CENELEC Guide 6 (2002) Guidelines for standards developers to address the needs of older persons and persons with disabilities

According to that guide the design of buildings can incorporate simple measures that enable people to feel more confident in the physical environment. The guide states that accessibility in and around buildings can be improved by avoiding unnecessary changes in level at, and even very small changes of level, edges and protrusions can

cause tripping. In addition where level changes cannot be avoided, they should be as low as possible, and clearly marked. (CEN/CENELEC Guide 6, 2002: 15).

ISO/TR 9527:1994: Building construction -- Needs of disabled people in buildings - Design guidelines is also one of main reference design guides for designers dealing with interior spaces. That standard deals with the needs of people with disabilities and design issues related to buildings and provides some guidance for practitioners in the form of a general account of basic and particular needs. I*SO/TS 22559-1:2004 Safety requirements for lifts (elevators) -- Part 1: Global essential safety requirements* (GESRs) is a specific standard for design and installation of lifts to take into account safety factors and the needs of people with disabilities. *ISO 16201:2006 Technical aids for persons with disability-Environmental control systems for daily living* is also a detailed specific design standard developed in order to take into account safety and to enable people with disabilities to utilise such services.

ADA (Americans with Disabilities) Standards for Accessible Design is one of the commonly referred standards developed in US. That standard provides guidelines, issues, factors and measures for architects, planners and practitioners. That standard is comprehensive and detailed guideline and provides specific measures for outdoor and indoor spaces

BS 8300:2009 Design of buildings and their approaches to meet the needs of disabled people is a code of practice developed by British Standards Institute. That standard is also an internationally accepted guide for designers and practitioners. BS 8300 explains how the built environment can be designed to overcome, obstacles that prevent people with disabilities face with in their daily life. That standard gives provides issues and criteria for design of buildings and their entrances and open spaces to meet the needs of people with disabilities.

Australian institute of standardization Standards Australia developed a comprehensive an specific design standard which provides technical specifications for architects, planners and practitioners and in order to take into account accessibility and mobility needs of people with disabilities. That standard consists of four sections which are *AS 1428.1: (1992) Design of Access and Mobility - Part 1, General requirements for access- Buildings, Australian Standards, AS 1428.2: (1992) Design of Access and Mobility - Part 2, Enhanced and additional requirements - buildings and facilities, AS 1428.3: (1992) Design of Access and Mobility- Part 3, Requirements for children and adolescents with physical disabilities, AS 1428.4: (1992) Design of Access and Mobility- Part 4, Tactile ground surface indicators for the orientation of people with vision impairment*

Canadian Standards Association developed *B651-04 (2007) Accessible design for the built environment* which specifies technical requirements on how to make buildings and other facilities accessible and safely usable by persons with physical, sensory, or cognitive disabilities.

TS 9111: Specifications for Designing Residential Buildings for the Disabled covers the specifications for designing residential buildings for people with disabilities. *TS 12576: Structural Preventive and Sign (Pictograph) design criteria on streets, boulevards, squares and roads for handicapped and elderly people in urban areas* is about structural prevents and signs design rules for people with disabilities to eliminate obstacles that they face in the streets of urban areas. *TS 12460: Rail rapid transit system in urban part 5- design criteria of facilities for handicapped and elderly people* includes the design principles and measures for urban rail transit systems

In Greece, the major reference concerning accessible design is the “Design for all” guidelines of the Ministry of Public Works.

The guidelines include chapters concerning:

- Anthropometric elements
- Open spaces for pedestrian use
- Ramps
- Lifts
- Signage
- Entrances
- Public toilets
- Public buildings
- Residences

Extensive legislation concerning accessibility provisions has also been developed which takes into account the provisions necessary for people with disabilities in public buildings, open spaces and all modes of transport. Some of the most important laws on the subject are the following:

> *Official Journal of the Hellenic Republic 18A15.01.2002 “special regulations on the service of people with disabilities in existing buildings” and “special regulations on the service of people with disabilities in public spaces reserved for pedestrians”,*
>
> *Official Journal of the Hellenic Republic 140A13.06.00 Special regulations on the service of individuals with disability,*
>
> *Official Journal of the Hellenic Republic 18A15.01.2002 “special regulations on the service of people with disabilities in existing buildings” and “special regulations on the service of people with disabilities in public spaces reserved for pedestrians”, Classification of buildings, additions to General Building Regulations concerning lifts, stairways, open spaces,*
>
> *Official Journal of the Hellenic Republic 2065B/ 24.10.2007 "Reproduction of copyrighted material for people with disabilities"* and *Official Journal of the Hellenic republic 69A/20.3.2007 Structure and operation of Higher Education Institutions*

3.1. Accessibility guidelines and standards for outdoor spaces in Higher Education Settings

3.1.1. Footpaths – pedestrian zones

The width of the free pedestrian movement zone (open space, resting area or building entrance) should be 300 cm at least, so that, besides the unrestricted move of pedestrians, the pavement can be used by emergency and goods supplying vehicles.

The width of the stop zone in addition to pedestrian movement zone should be 120cm. In areas where the prevailing use, by planning, is the commercial one, a free zone of 120cm width is required in order to create a stop zone in front of the shops' windows (zone of visual trade) in addition to the free pedestrian movement zone.

There should be rest areas 0,8m.*1,3m., available every 100m in central areas and every 200m. in more distant ones. There should be seats available so that pedestrians can rest for a while. The seats should be "friendly" to the user such as, upright position, comfortable surface, separate arms.

Street furniture should not be excessively used. In case they are used, street furniture's design should be of high quality. There should be a clear route through the street furniture.

There should be proper tactile signage guiding people with sight impairments. Where the footpath ends should be obvious, particularly for parents and persons with sight impairments.

There should be Tactile Surface Indicators (TSI) implemented and these should be appropriately placed. In most cases, due to the extended width of footways, the implementation of TSIs is necessary. TSIs should form networks and should not be abruptly terminated. There should be appropriate tiles used for the formation of the TSIs according to accessibility guidelines. There should not be any grids or other obstacles on TSIs. TSI should be at a distance of at least 50 cm from the street plan line but in such a distance that the user can follow it.

3.1.2 Bridging different levels between footway and road surface

All connections between road surfaces and footways should be leveled in an accessible way. If the two surfaces are at the same level, continuity of an accessible pedestrian way should be maintained. If level differences between the roads and the footways occur, such as steps, stairs, or dropped kerbs, then these areas should be bridged by accessible ramps or lifts when necessary. If a dropped kerb or ramps are present where the road and the footway connect then these provisions should be done at both sides of the road ensuring accessibility.

The placement of these provisions, such as ramps, dropped kerbs should be done at places along the route of the pedestrian movement such as at places where the pedestrian would naturally want to cross the road.

Visibility is important in providing an accessible pedestrian network. The pedestrian should be able to see the opposite side of the road.

Geometry:
If ramps are provided to bridge level differences, in the ramps clear width of at least 150 cm that is free of any obstacles should be ensured. Outdoor ramps where the roads connect with the footways should be free of obstacles, temporary or permanent. To ensure these, regulations for preventing commonly observed parked vehicles should be taken. If the ramps are located at street corners, dropping of the whole corner is recommended.

Outdoors ramps connecting roads and footways should be designed with a slope less that 5% to a slope 1/12 maximum. A wheelchair user should be able to use the ramp autonomously. The ramps that connect roads and the footpaths should be appropriately designed so that no level differences are present where the tow surfaces join at the end of the ramp.

Material:
Ramps surface should be slip resistant, stable and easily maintained. Proper drainage of water should be implemented in ramp design in order to prevent water accumulation in case of rain or landscape watering by means of grills or drainage holes. However, these should be done in a way not to reduce ramp width or obstruct free movement of users with disabilities.

Signage:
In places where ramps are used connecting roads and footways, tactile surface indicators should be implemented in an appropriate way. The beginning and end of the ramp should be marked with special tactile surface indicators signifying attention/danger in order to notify users with vision disabilities that there is a drop in surface level.

3.1.3. Bridging different levels with ramps (between the footways and the level of other land uses, e.g. buildings)

Entrances

Location: Each building should have at least one accessible entrance preferably at the main public entrance to the building. In cases where accessibility at the main entrance cannot be provided for users with disabilities, an alternate accessible entrance located at a place easily accessible from the footway should be provided.

Geometry: There should be a leveled clear space of minimum 150 cm to 150 cm in front of the entrance that can accommodate a wheelchair maneuver.

The area in front of the building needs to be at the same level in relation to the walkway and in relation to the entrance door. If there are any level differences, accessibility measures for steps, ramps, lifts or any combination needs to be implemented. In front of the building if there are any vertical thresholds such as in cases where materials change, they should be less than 1 cm.

Ramps

General: There should be an option with stairs, facilitating people with specific disabilities (e.g. with restricted vision). If a permanent ramp cannot be constructed, other alternatives available (portable ramp, platform lift, stair lift etc.) should be provided.

Geometry: Ramp slope should not be more than 5% or 1/12. The ramps sides should be protected with handrails or solid kerbs.

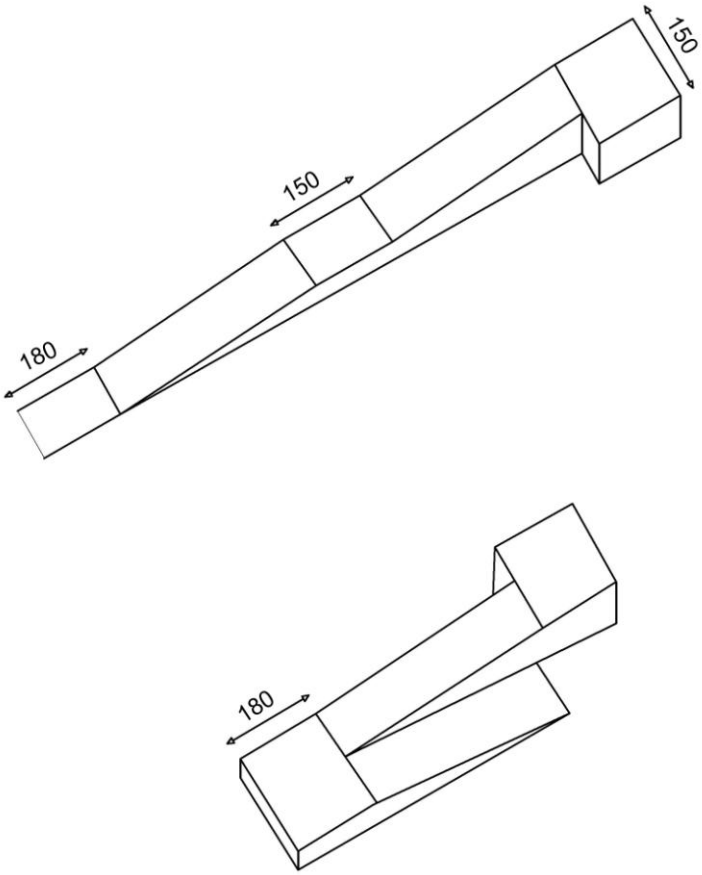

Figure 1: Ramp Dimensions
Source: Adapted from Greek Standarts

There should be landings at the beginning and end of the ramps. If there is no landing at the end of the ramp, enough space should be provided for the opening of a door. Ramp should have a landing in the middle due to increased length (more than 10 meters) If there are direction changes appropriate landings in each direction change should be provided.

Handrails

In case the ramp's width exceeds 3,0m. there should be a continuous handrail in the middle of the ramp.

Handrails should be installed to both sides. Handrail should be double that recommended measures of handrails are 70cm. and 90cm.

Handrails should have enough colour-contrast with the environment. Material used for the construction of the handrails should not be cold, slippery, or difficult to grip.

The diameter of the handrail should be between 45,50mm and should have circular cross section.

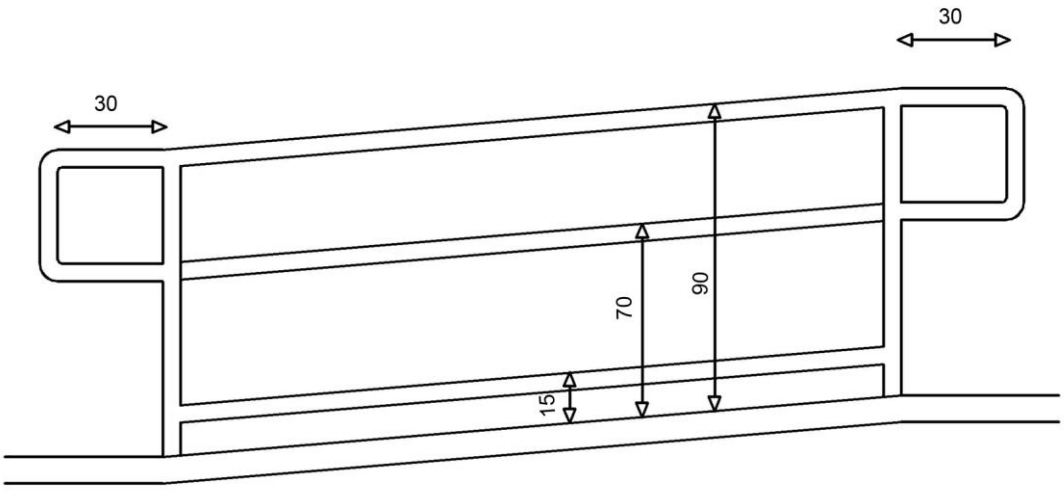

Figure 2: Handrail dimensions.
Source: Adapted from ADA Standarts for Accessible Design

ADA standard offers 68.5 cm for lower and 86.5-96.5 cm for upper level of handrails. SN 521 500 Norm (SN 521 500 avec guide Construction adaptée aux personnes handicapés", Zurich, 1989) offers maximum 30 cm for lower and 90-100 cm for upper level of handrails. Turkish standard offers 90-100 cm.

Photo: External staircase at the Aristotle University of Thessaloniki.

Surface/ Signage

Ramp's surface should be slip-resistant, stable, easy to maintain and landings should be marked with colour-contrast.

At the beginning and the end of the ramp there should be appropriate yellow Tactile Surface Indicators marking "Danger"

3.1.4 Footways

General

In all pedestrian areas, accessible and continuous footways should exist.

In case construction works take place within the free zone for the movement of pedestrians, there should be a new free zone for the movement of pedestrians created, with a width of at least 1,2m, with appropriate signage, that secures safe movement of all footway users.

Accessible footways should create "networks" so that easy movement of pedestrians is not interrupted.

Walking surface

There should not be any anomalies, such as surface and pavement problems, which can cause vibrations to wheelchair users. The surface should be continuous free of

cracks, bad joints, additions, broken or damaged surfaces. Any depressions which might concentrate water should be avoided.

The walking surface should not be slippery and appropriate materials should be used.

The grids or other obstacles to be used on walking surfaces should be at the same level with the movement surface and they should be designed so that they do not create barriers such as grids with wide gaps.

In case grids are placed, the gaps created should not be more than 1 cm wide. Grids that are perpendicular to the walking line should be preferred.

Where different materials meet should be appropriately designed not to create any problems for movement. For this reason, surfaces with many joints should be avoided.

Figure 3: TSI (Tactile Surface Indicator) along pedestrian route and sidewalk Implementation of TSIs at the Aristotle University of Thessaloniki

Geometry

Pavement widths on footways should be at least 205 cm where 200 cm should be free of obstacles. For roads longer than 12 meters, minimum 205 cm. footway width; for roads 9-12 meters, 205cm. footways width; for roads 6-9 meters, minimum 150 cm. footway width (the same as the free zone for movement of pedestrians); for roads shorter than 6 meters length, minimum 150 cm. footway width (205 cm. recommended footway width) should be maintained if possible. For roads, less than 6 meters, the creation of a footpath is recommended. Minimum width free of obstacles along the footway should be 150 cm. where width of a double baby pram is 100 cm, wheelchair alone is 70 cm. and 90 cm. including the user's hands and width of an electric wheelchair is 100 cm. There should be footways of sufficient widths to accommodate pedestrians during the peak hour near places where pedestrians are gathered, such as cinemas, theatres etc.

Slope:

In both horizontal and vertical directions, that is in cross-section and longitudinal section of the footway, there should not be any slope more than 4% which can push users with wheelchairs to the vehicle road. The desirable slope of ease of movement at footways should be between 1 to 1,5 %.

In case the footways width is only 150 cm, there should be a widening of 200cm. at every 500 cm.

The pavement should have a kerb height between 7 and 10cm. The footway should be free of obstacles such as tree branches, signs, etc., for a height of 220 cm. along the length and width of the free pedestrian movement zone.

There should be rest areas of 80 cm X130 cm available every 10 meters in central areas and every 20meters in more distant ones.

In case streets are dominated by shops, there should be a free standing zone of 120 cm width in front of the shops.

Obstacles

Parked vehicles on footways are common problems observed on footways. Whereas obstacles for preventing occupation of vehicles (such as small pillars) on footways may help solve this problem, they can cause obstacles for users with disabilities on footways. For this purpose, if such obstacles are needed, they should be designed and located so that they do not reduce minimum required width and height on footways for pedestrian movement. Similarly, their shape and material should not cause any serious injury on someone who falls on them (e.g. cyclist, motorcyclist, pedestrian). If there are protecting barriers on footways, they should have a height of at least 75cm, have rounded corners and there should be a horizontal bar of 10cm from the ground in order to facilitate their identification from people with sight problems who use canes.

The footway should be free of obstacles (tree branches, signs, etc.) for a height of 220 cm along the length and width of the free pedestrian movement zone. Trees or bushes should not restrict the width of the free movement zone or visibility. If landscaping is used on footways, the width of the plants zone should be considered in addition to the free movement pedestrian zone width.

Obstacles should create enough colour contrast with the environment for their easy identification for users with low vision.

Temporary obstacles

Temporary obstacles are moveable obstacles, e.g. cars and motorcycles parked on the pavement, gardens which extent to the pavement, cars with two wheels on the pavement, movable advertising signs of shops, stands or shop products (e.g. furniture) on the footway. If temporary obstacles are necessary to exist, they should be marked with a certain continuous railing, painted with two sharp colours and lighted during the night, so that it will always be visible. In case there are commercial areas along the footway, it should be ensured that the pavement is not occupied by these places furniture such as shops' and cafes' chairs and tables.

Street maintenance level

There should not be any materials (e.g. from plants) or objects (e.g. garbage) which make the use of the surface by pedestrians and wheelchair users dangerous or difficult. Garbage on the footways and pollution from pets should be cleaned regularly. Sufficient drainage should be maintained to prevent stale waters on the footway. Roads should be cleared from leaves, snow, ice, etc. adequately.

Perception

There should not be any obstacles which cannot be identified by people with sight problems who use a cane. There should be adequate lighting for better perception of the surrounding.

3.1.5 Street furniture, equipment and signage

Street furniture, equipment

The equipment should be gathered together in the external part of the pavement, in a width of 130 cm. The street furniture and signage should be used in areas where they are really required and excessive use should be avoided.

The street furniture should not create obstacles for movement or interrupt the smooth movement of pedestrians. Similarly, they should not create obstacles to people with visual impairments.

Street furniture should be in good working condition and all the equipment should be easily used by people with disabilities. Standardization of the equipment helps users with disabilities identify these furniture and equipment easier.

All street furniture should be projected to the ground in order to be identified by people with visual impairments using a cane.

Telephone booths

Telephone boot should be accessible for people with disabilities. There should be at least 130cmx130cm available space in front of boot. Enough space should be provided for seated users.

Visual messages on the boot should be easily visible by wheelchair users. The place of the messages should be located on an appropriate height (at most 1.2m. from ground).

Information should be provided also in audible format.

There should be an induction loop for people using hearing aids. The volume could be adjustable.

Buttons should also be in Braille.

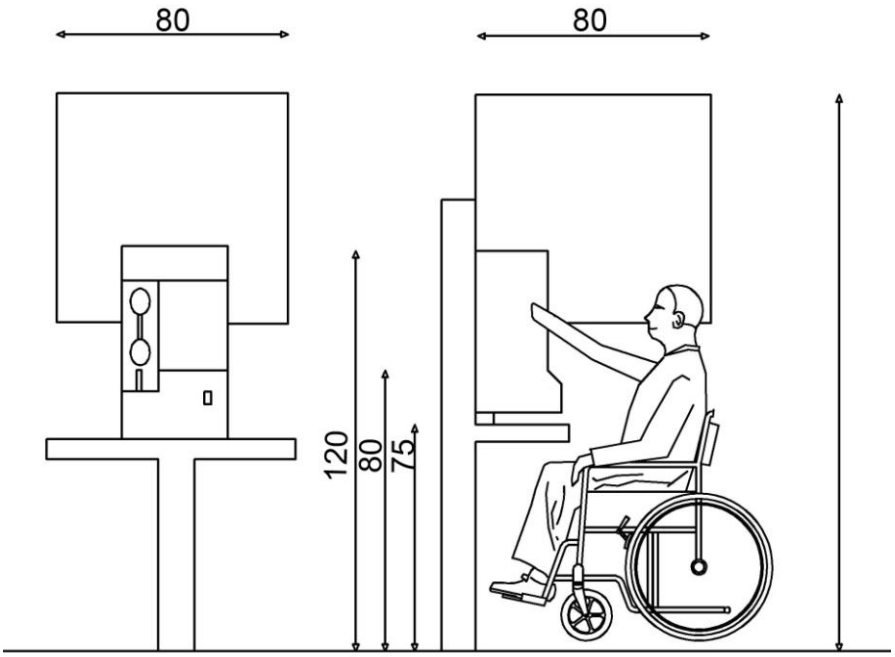

Figure 4: Dimensions for Telephone Booths

Source: Adapted from Greek Guidelines

ADA Standards for Accessible Design offers 122-137 cm for the height of phone box (messages), and 76 cm. for the width of the booth. Turkish Standard offers 122 cm for the height and 120 cm. for the width.

ATMs

ATMs should be accessible for people with disabilities. There should be at least 130cmx130cm available space in front of ATM. Enough space should be provided for seated users. ATM should be designed for facilitation of a seated user or a user with short height.

Buttons of ATM should be in Braille. The visual messages displayed could be read by wheelchair users, Buttons and card receiver should be placed in at a height less than 1,2m. from the ground. The information in audible format should be available.

Signage

General: Signage messages should be easy to understand, it should not create confusion.

Signage should be properly provided to both pedestrians and drivers

Signs should guide pedestrians continuously.

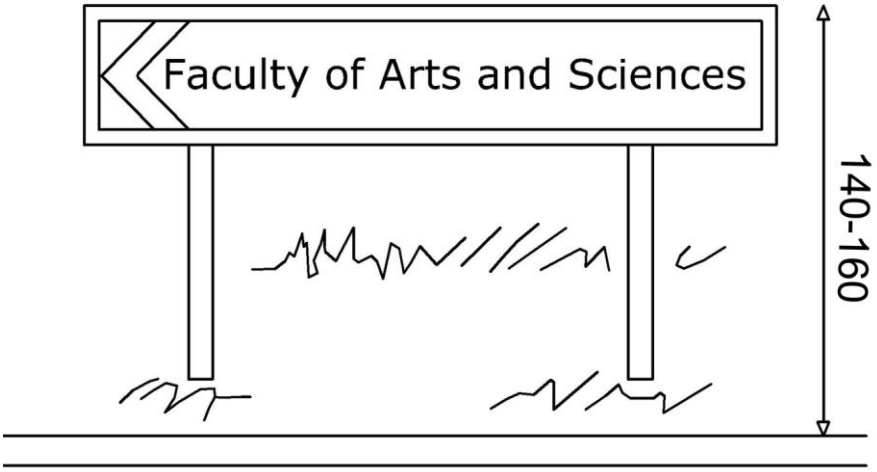

Figure 5: Information Signage
Source: Adapted from Greek Standarts

Geometry: Signage should be clear, well designed and easily understood by many users.

Pictograms should be used on signage.

Characters should be in appropriate size. If they are read from a long distance, e.g. buildings' entrances, 15cm, from average distance, eg. Instructions in corridors, 5-10cm, from small distance, eg. Signs on the wall, 1,5-2,5cm.)

Symbols should be in appropriate size. If the distance is between 3-6 meters symbol size should be at least 4cm. If the distance is between 6-9 meters symbol size should be at least 6cm. If the distance is between 9-12 meters symbol size should be at least 8cm. If the distance is between 12-15 meters symbol size should be at least 10cm.

There should be sufficient colour contrast between letters, symbols, pictograms and background

There should be tactile letters, numbers etc. or Braille signage used for people with sight problems.

Signage should be located at a height which facilitates its use by all. All signage should be located outside the “free movement zone”. If it is placed on walls it should be located at a height between 1.4 – 1.6m.

If maps are provided they should be in tactile form.

If lambs are provided, Tactile Surface Indicator should be placed on.

TSIs should form networks (continuous and integrated).

TSIs should be formatted in appropriate tiles according to national guidelines. Grids and other obstacles should be prevented on the TSI.

TSI should be located at a distance of at least 0,5m from the street plan line so that user can follow it.

3.1.6 Road Crossings

General

Road crossings are potential barriers for pedestrian movement when not designed appropriately and accessibly designed. For this purpose, the main goal should be to create safe crossings where accessibility provisions are integrated for all users.

Road crossings should be located at reasonable locations justified by pedestrian traffic and where the pedestrians would want to naturally cross the street. For increased safety, controlled crossings should be preferred over non-controlled ones.

Pedestrian road crossings should be available every 100 meters.

There should be provisions for traffic management at these areas which ensures that the crossing is not occupied by vehicles during the green light for the pedestrians. Traffic light for vehicles should be places in a way that forces drivers to obey the light rules and give right of way to pedestrians in green light for pedestrians.

Geometry

Crossing width should be at least 250 cm and preferably perpendicular to the traffic flow to minimize the distance to be crossed by pedestrians.

The sidewalk’s kerb should be dropped at the whole crossing and the height difference between the sidewalk and the crossing should be leveled accessibly at both sides of the crossing. Ramp slope should be less than %6. For roads more than 12meters wide, there should be islands at least 150 cm wide such as at the median. Tactile Surface

Indicators with at least 60 cm. widths should be placed on beginning and end of the crossing.

In case drainage grids are used, these should be placed outside of the pedestrian movement zone. The drainage grids should not create an obstacle on the road surface higher than 2 cms.

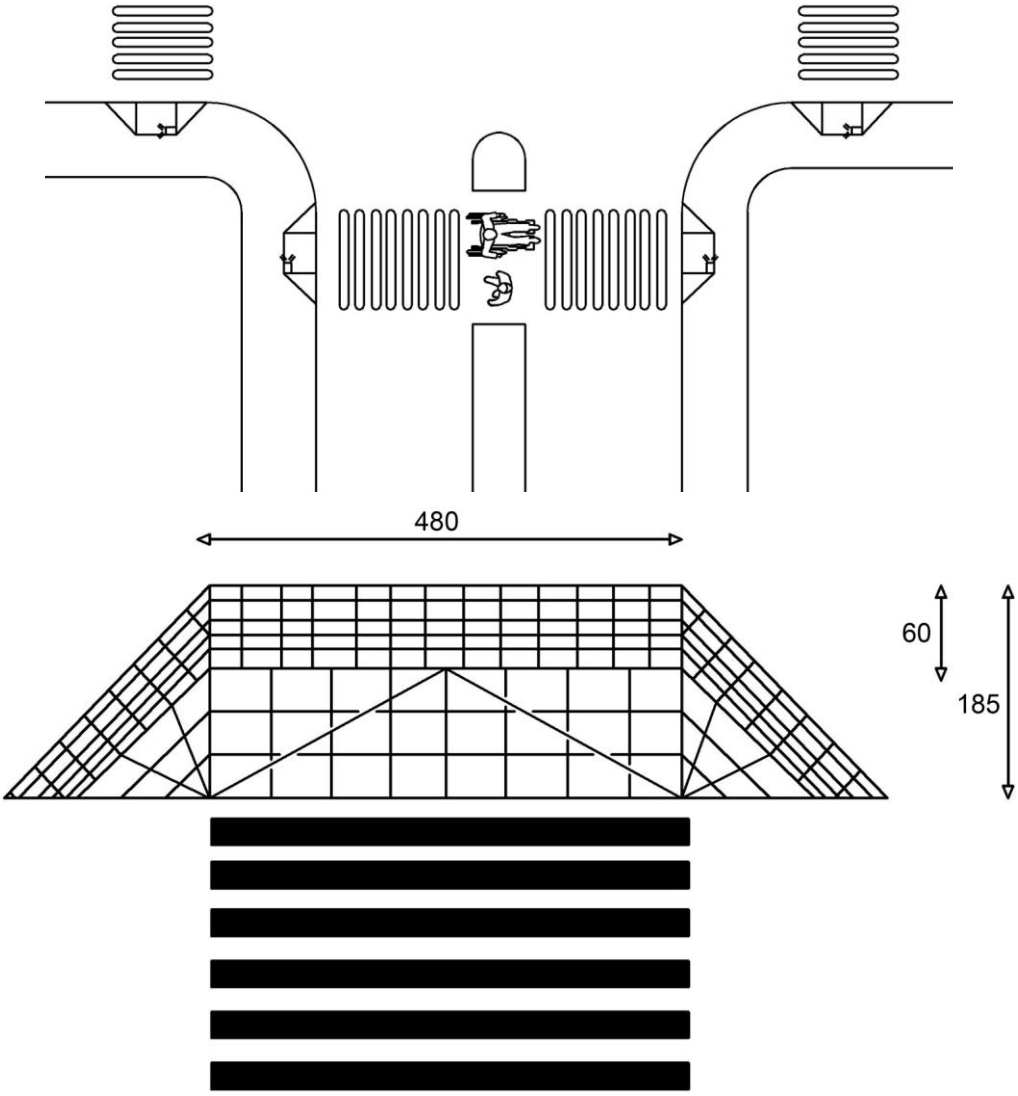

Figure 6: Location of Road Crossings and Dimensions.
Source: Adapted from Turkish Standarts

Signage: Crossings should have markings on the road surface which imply the pedestrians' priority, such as a STOP sign on the road surface at least 100 cm before the crossing. There should be tactile signage for people with sight problems that are properly designed and implemented for accessibility. There should be DANGER markings placed at the beginning and the end of the crossing.

Controlled crossings (crossings with signal)

General: Signal boxes should be located in places easily visible to pedestrians.

Geometry – Characteristics: The green light for pedestrians, often shown as the green walking man figure, should continue for ample time for pedestrians to cross the street. The ample time can be determined by the quotient of the road surface width over the mean walking velocity of 135 cm/seconds. In cases where prevalent traffic is largely of elderly pedestrians and people with disabilities, which may need longer time to cross the road, longer green light for pedestrians should be considered.

During the green light for pedestrians there should not be any simultaneous traffic such as active left turning lane for cars that intersects with the pedestrian's crossing path.

The crossing signal should be activated by pedestrian if possible. The mechanism for such a controlled crossing can be in the form of push buttons, which should be located between 90 cm to 120 cms from the ground level for ease of reach by users with disabilities. The button should bear a post that makes these control systems clearly identifiable by pedestrians. Tactile and Braille embossing showing the name or number of the street and the crossing direction on buttons where there is also a vibrating alert mechanism should be preferred for users with visual disabilities.

Another option at controlled crossings is sensor activated pedestrian crossings where there is a system integrated that recognizes pedestrians. In all cases, the control button should face the correct direction.

Signage: Pedestrian crossing signals should be both audible and visual referring to users with visual and hearing disabilities. A tactile indicator, such as a rotating knurled cone, can be used to complement the audible signal. Audible signals, however should not be annoying people living or working around the crossing, because in these cases, damages can be done by these people to the signal resulting in frequent maintenance problems. To prevent these, audible signals that are user activated only, can be used at crossings.

3.1.7 Bus Stops

General

Accessible bus stops that are properly designed for use by people with disabilities should be provided on all campus and city premises. The distance between two consecutive bus stops should be less than 400 meters however 200 meters distance is preferable for bus lines with frequent use by elderly passengers or people with disabilities.

Geometry

The bus stop should be sheltered, preferably with at least one back panel. The shelter's side panels should be of transparent material, such as unbreakable glass, which is sturdy, yet does not hinder visibility of coming buses.

The shelter width should be at least 140 cms. A user friendly seat, which is up-right with separate arms, and color contrasted, should be provided for waiting passengers. There should be available clear space next to the seat and under the shelter to accommodate wheelchair users. In front of the bust stop, there should be a corridor space that is at least 130 cm. wide.

In cases the bus stops are located on sidewalks or footways, there should be an obstacle free footway at a width of 200 cm (150 cm is acceptable and 100 cm is the absolute minimum for a limited distance).

A boarding area of 200 cm X 200 cm should be present at the bus stop. A raised bus boarding area accessible from the sidewalk can be used to keep transition gradients in going onto the bus to acceptable levels, which is 1/20 where the maximum transition should be 1/12.

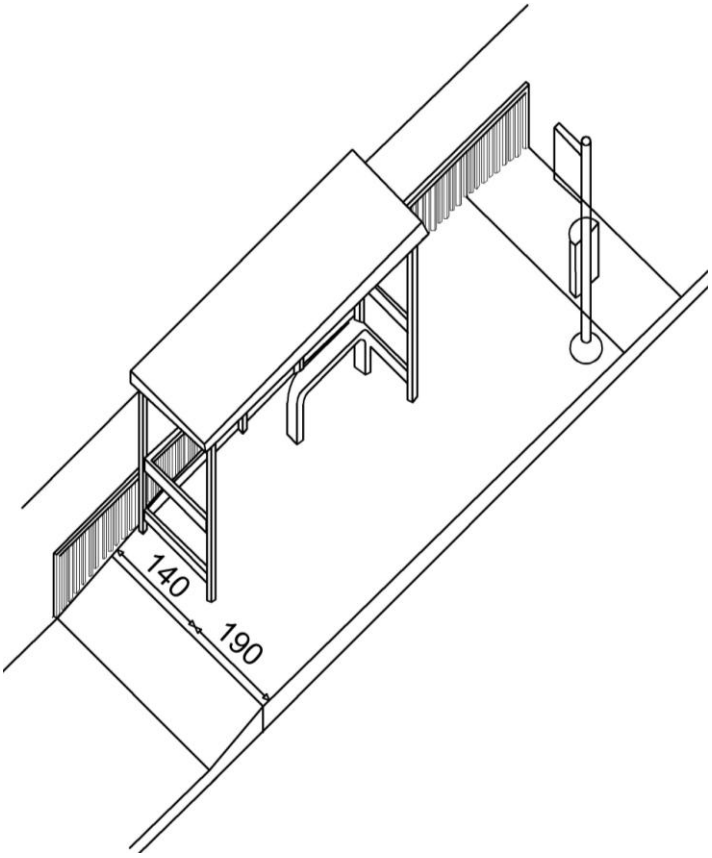

Figure 7: Bus Stop Dimensions
Source: Adapted from UK Standard

Whereas the passenger entry levels at the buses can differ depending on the type of the bus, a kerb height of 16 cm can be preferred which is considered to give a good compromise between ease of access and reduced damage to the bus.

The bus preferably should approach the sidewalk in order for it to be almost adjacent to the kerb and the distance between the bus and the kerb should not be larger than 3 cm.

Signage and color

The bus stop should have color contrast with the surrounding so that it can be easily identified by people with low vision.

Tactile ground surface indicators should be provided near the bus stops so that people with vision problems can reach the bus stops. These tactile indicators should have appropriate SERVICE tile marking the bus stop.

Glass panels used at the bus stops should have color band at least 15 cms wide at a height of 140 cm to 160 cm from the ground level.

Accessible information in the form of maps, timetables, and route information etc., should be available at the bus stop. These information boards should be located at an appropriate height of 140 cm to 160 cm for ease of use by people with disabilities.

The text provided should be visible and legible and the fonts should be of an appropriate size. The texts should be oriented in order to assist pedestrians.

Audible information for people with sight problems, and tactile information in Braille should be provided as well.

3.1.8 Stairs

General

If there are any stairs in any place, alternative route (ramps or lift) should be provided.

For stairs enough lighting should be provided.

There should be a provision for bridging small height differences (about 5 cm.) in the same horizontal level.

The back of the staircase should be covered so that it does not impose a danger to people with sight problems

Geometry

The steps should have rounded noses. The staircase should not be open tread.

Minimum clear width of stair should be 1m, (1,2m is preferred).

Height of riser should be between 13 and 15cm, and should not be more than 17cm.

Tread depth should not be less than 25cm. (30 cm is preferred). All treads should have the same depth. The treads should be slip resistant. If it is not provided, treads should have slip resistant materials at their edge.

The number of risers in each flight should be less than 12.

Handrails

Handrails should be installed to both sides. Handrail should be double, that recommended measures of handrails are 70cm. and 90cm. Handrails should also be provided at landings.

Handrails should have enough colour-contrast with the environment. Material used for the construction of the handrails should not be cold, slippery, or difficult to grip.

The diameter of the handrail should be between 45,50mm and should have circular cross section.

Signage

Enough colour contrast should be provided between tread and height. The steps' edges should also be marked with colour contrasting material.

Tactile warning surfaces should be provided at the foot and head of stairs (tiles marking "Danger")

The number of stairs should be provided in Braille at the foot and head of the staircase.

3.1.9 Parking spaces

General

There should be accessible parking spaces reserved specifically for drivers and passengers with disabilities at a number of minimum 5% of all parking spaces or at least one whichever is greater. Of accessible parking spaces, 1/8th in number or at least 1 should be reserved for van type vehicles.

These parking spaces should be located on accessible routes and as close to accessible entrances of the served facilities as possible. Accessible parking spaces should give sense of security to the user via good lighting etc. There should be means for the user to reserve these parking spaces in advance over the telephone, internet or by email etc.

Geometry

For car type accessible parking spaces, 350 cm X 500 cm is required and sufficient enough for most vehicle models. If the accessible parking space is located adjacent to a footway, 350 cm X 600 cm space is necessary. The vehicle doors should be fully opened within the designated space in order to aloe drivers and passengers with disabilities to be transferred to an adjacent wheelchair when needed. Depending on the vehicle type, the drivers may need to access the vehicle form the rear door. For these cases, there should be enough space provided behind the vehicle.

In accessible parking spaces, there should be 260 cm free height space to accommodate high top cars or vans and wheelchairs stowed on top of cars. The type of surface material used in accessible parking areas should conform accessible surface material guidelines and therefore use of loose gravels should be avoided.

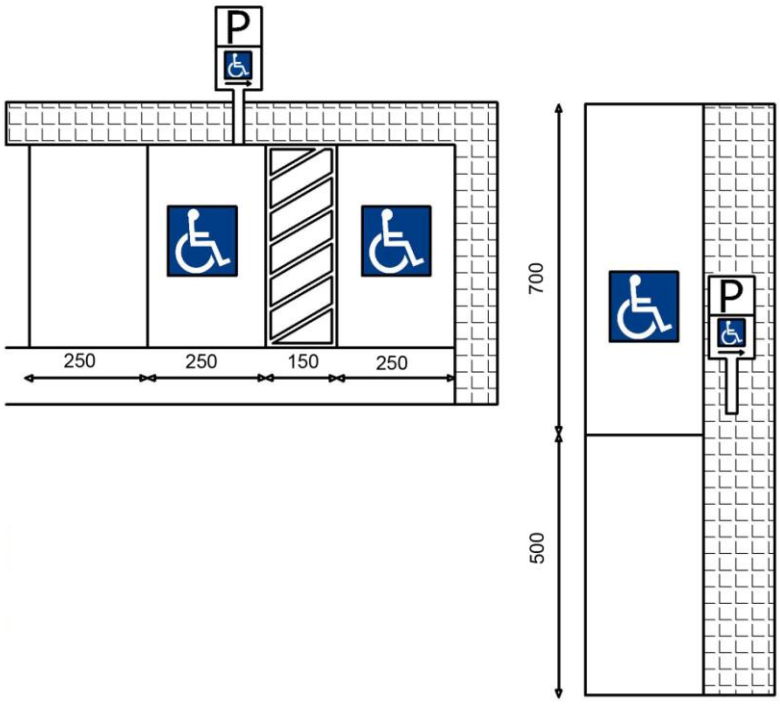

Figure 8: Dimensions of Parking Spaces
Source: Adapted from Turkish Standarts

There should be free movement routes leading to and from the accessible parking spaces with a minimum width of 90 cm. All height difference should be appropriately bridges and the routes should not be interrupted by stairs or kerbs. In case there are ticket dispensers, the slot for cards, money, or ticket should be placed between 90 cm to 120 cm high.

ADA Standards offer 244 cm per vehicle, 143.5 cm for wheelchair circulation space, and 152.5 cm for other vehicles. SN 521 500 Norm offers 350cm. for each parking space (230 cm. for vehicles and 120cm for wheelchair movement). Turkish Standards offer 250cmx 700 cm. for vehicles and 120 cm for wheelchair movement. Greek standards require accessible parking spaces to be 350cm x 500cm.

Signage

Parking spaces reserved for people with disabilities and parents should be clearly indicated with appropriate signs on the ground and on poles by the parking space using the International Symbol of access. These designated parking spaces should be easily identified from the entrance of the car park. At the entrance to the parking lot, there should be a sign indicating allowed maximum height for vehicles in the car park. Tactile Surface Indicators should be implemented for people with sight difficulties.

3.1.10. Perceptual organization of the environment

Physical and sensory stimuli found in the environment are essential in perception off the environment and help way finding and movement of users with sensory and mental disabilities.

Visual stimuli in the built and natural environment

The built and natural environment can play an important role for perceptual organization of the environment which is fundamental in users with vision problems and can help way finding for all pedestrians. Architectural features along the road and factors such as presence of mostly contemporary or historical buildings can help these users identify their surroundings. Aesthetic quality in the environment, similarly, is important, and buildings which do not match the area, empty fences, temporary fences of buildings, abandoned buildings can create problems. Points of interest in the area, use of color, continuity in facades, presence of decorative elements such as flowers, art pieces, sculptures, fountains, etc. are examples of built and natural environmental features that can help increase physical as well as perceptual quality of the environment.

Landmarks and visual stimuli that can cause particular impression can be kept in memory and facilitate orientation especially for users with hearing impairments. Painted surfaces, prevailing color of the area, prevailing forms, landmark buildings, trees, sculptures all make the area more easily legible and these visual stimuli can be used

for navigation. Information provided by visual means, for example legible visuals used in signs, can facilitate people with hearing impairments in particular.

Sound stimuli

Prevailing sounds in the environment, such as a central artery's passing by noise, bird sounds in a park, honking drivers on the street, children's voices from a schoolyard and the like can be used for orientation purposes particularly for people with no vision. Whether these are permanent or temporary, it should be noted that these play important roles for movement of users with disabilities.

Smells

Prevailing smells in the areas such as from flowers, trees, bushes, area activities like bakeries, pastry shops, steakhouses, etc., can be used for orientation particularly by people with no vision.

Haptic (sense of touch) stimuli

The ground texture on footways, pedestrian areas, and along the walking routes, can give different feelings and thus particular feels of the ground texture can be used for orientation purposes especially for blind people.

Tactile signage and signs embossed with Braille, similarly can guide people with no vision in the area.

Permeability

Permeable roads provide shorter distances between two places and give variety of routes for reaching the same destination. For this reason, permeability of roads should be desired and dead-ends should be avoided when possible. In case dead end roads exist, these should have appropriate information signs.

Sense of security

Sense of security is particularly an important determinant for space use for people with disabilities, people with children and the elderly. Providing safety feeling, both in daytime and nighttime is desirable. Street lighting should be present to support sense of security and any areas that might give feelings of danger such as empty or abandoned spaces, heavy car traffic, cars running very close to pedestrians, and dangerous turns should be avoided.

Personal comfort

High personal comfort levels should be provided where pedestrians are not exposed to excessive noise, wind, cold, bad smells, pollution, etc., which can pose danger for one's health. Provisions to maintain optimum personal comfort should be taken when needed.

3.2. Accessibility Guidelines and Standards for Indoor Spaces in Higher Education Settings

3.2.1. Context

This section will give standards and guidelines for commonly found interior spaces in higher education environments. First, common spaces found in most buildings, such as entrances, circulation, services and supporting design features such as provisions for emergency conditions, signage, acoustics, and lighting are given. Afterwards, wide-variety of spaces that university campuses might be composed of, such as classrooms, conference halls, dining areas, etc. are given with their special requirements.

3.2.2. Entrances

Location: Each building should have at least one accessible entrance preferably at the main public entrance to the building. In cases where accessibility at the main entrance cannot be provided for users with disabilities, an alternate accessible entrance located at a place easily accessible from the footway should be provided.

Geometry: There should be a leveled clear space of minimum 150 cm to 150 cm in front of the entrance that can accommodate a wheelchair maneuver.

The area in front of the building needs to be at the same level in relation to the walkway and in relation to the entrance door. If there are any level differences, accessibility measures for steps, ramps, lifts or any combination needs to be implemented. In front of the building if there are any vertical thresholds such as in cases where materials change, they should be less than 1 cm.

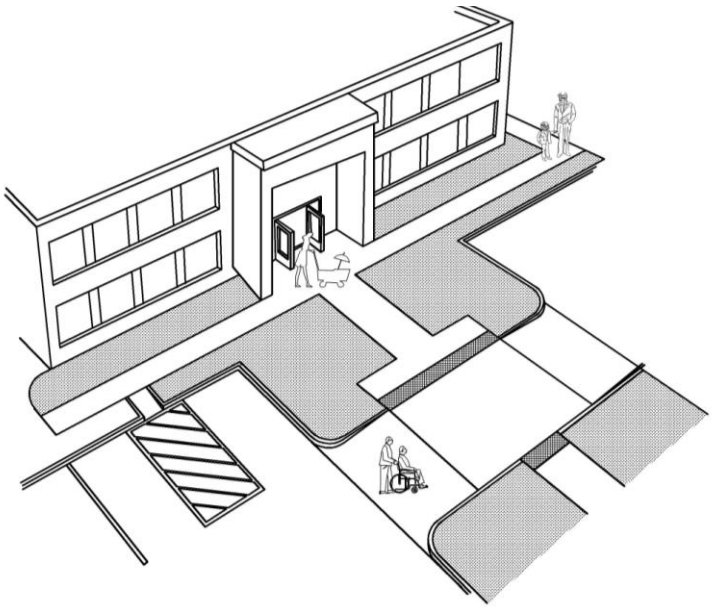

Figure 9: Entrance Design for Buildings
Source: Adapted from ADA Standarts for Accessible Design

3.2.2.1. Ramps:

Location: Location of stairs and ramps should be in a logical place in relation to the entrance.

Geometry: The ramp can be designed in various geometries such as linear, L turn, U turn etc. In each case, special arrangements should be implemented to ensure accessibility.

The width of the ramp should not be less than 90 cm.

The slope (height rise to length ration of the ramp) should be maximum 6%.

The ramp should be sheltered.

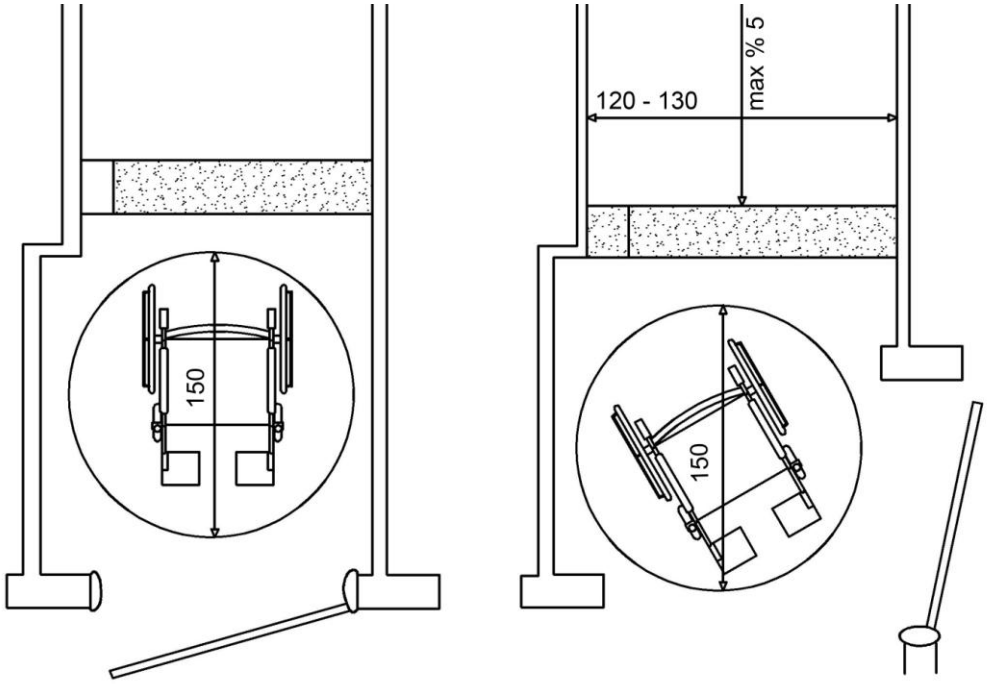

Figure 10: Measures for different forms of ramp

Source: Adapted from Greek Standards

Landings: The ramp should have landings in both ends. If the length of the ramp is more than 10 meters long, there should be landings in the middle. If the ramp changes direction there should be landings in the middle. The size of the landings should be at least 150 to 150 cms.

Color and texture: The landings should be identified with color contrast. There should be tactile surface indicators signifying danger (attention) at the beginning and at the end of ramps and if there are landings on landings.

Material: The ramp surface should be slip resistant, stable and easy to maintain for easy but stable movement.

Lighting: There should be enough lighting around the ramp. For ease of use in cases where natural lighting is not sufficient and after the sunset, artificial light should be considered.

Handrails: The ramps sides should be protected with handrails or solid kerbs. Handrails used at the sides of ramps should be designed in two different levels at 70 cm from the ground for children and people using wheelchairs and at 90 cm from ground level for other users.

The handrails should continue along the side of the ramp and should extend 30 cm from both ends. (ADA offers 30.6 cm, Turkish Standard offers 30 cm for interiors and 45 cm for outdoor stairs, Greek standards require 30 cm. SN 521 500 NORM offers 30.6 cm)

For wider ramps where the ramp width exceeds 300 cm, there should be a continuous handrail in the middle.

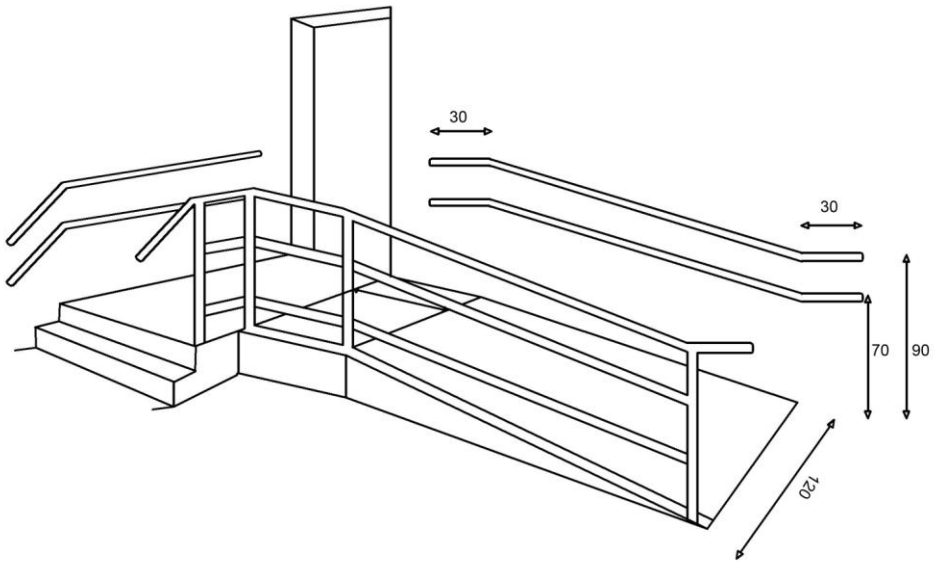

Figure 11: Measures for handrails
Source: Adapted from Turkish Standarts

The cross section of the handrails should facilitate their use such as they should be easy to grasp and slip resistant and at the same time should not have rough edges. Circular cross sections of 45-55 mm diameter are found to be better in ease of use. The handrails should have enough color contrast with the surrounding environment.

ADA offers 68.5 cm for lower handrail height and 86.5- 96.5 cm for the upper one. SN 521 500 NORM offers 30 cm for lower handrail height and 90-100 cm for the upper

one. Turkish Standards offer 80-90 cm for single handrail. Greek guidelines require double handrails at 70 and 90 cm.

SN 521 500 NORM offer 4 cm diameter of handrail cross section, and 5cm distance between handrail and the wall. Turkish Standards offer 3.2-3.8 cm diameter of handrail and 3.8 cm distance between handrail and the wall. Greek standards require 4 - 5cm diameter of handrail cross section.

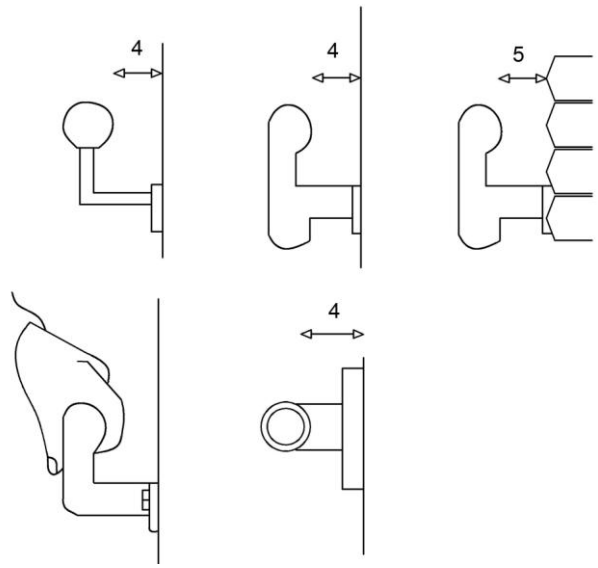

Figure 12: Door Handle Dimensions
Source: Adapted from ADA Standarts

3.2.2.4. Stairs:
Location: At the building entrance if stairs are used they should be located at a logical place in relation to the entrance.

Geometry: For stairs used at the entrances, the width of stairs should be at least 100 cm (120 cm is preferred), the height of the riser should be between 12-15 cm, and the depth of the thread should be 30 cm (Turkish Standard offers 15 cm height and 30 cm depth, ADA offers 28 cm depth). The stairs should have uniform depth along the walking path. The steps should have rounded noses. In cases where rounded noses cannot be implemented, straight noses can be used. Thread noses that have solid extensions are not recommended.

Small height differences up to 5 cm should be bridged with special provisions.

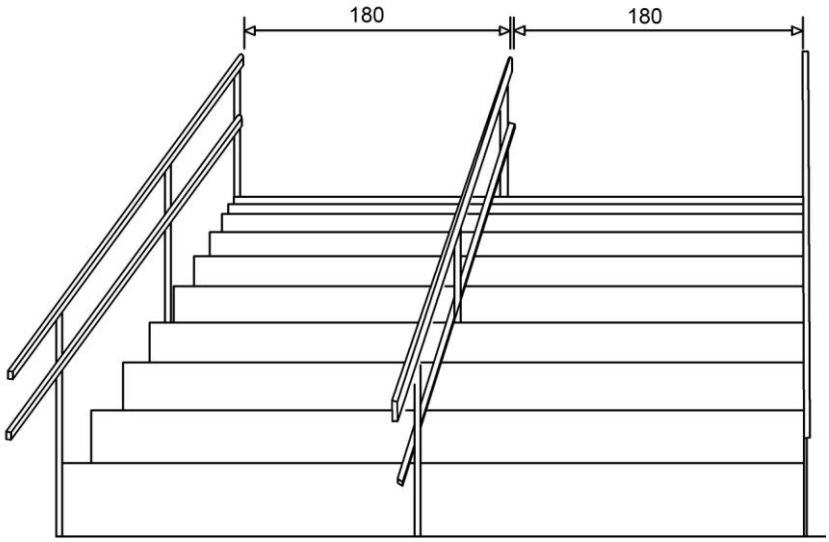

Figure 13: Stair Dimensions
Source: Adapted from Turkish Standarts

Turkish Standard offers 180 cm. clear widths of stairs.

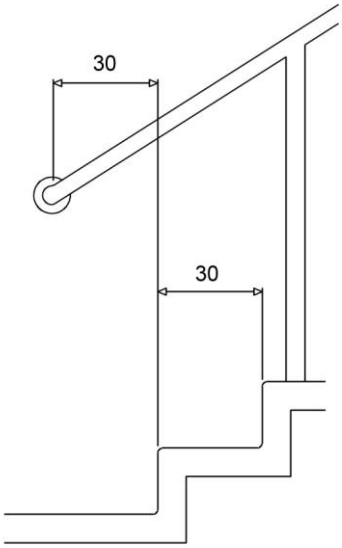

Figure 14: Stair Step Dimensions
Source: Adapted from Turkish Standarts

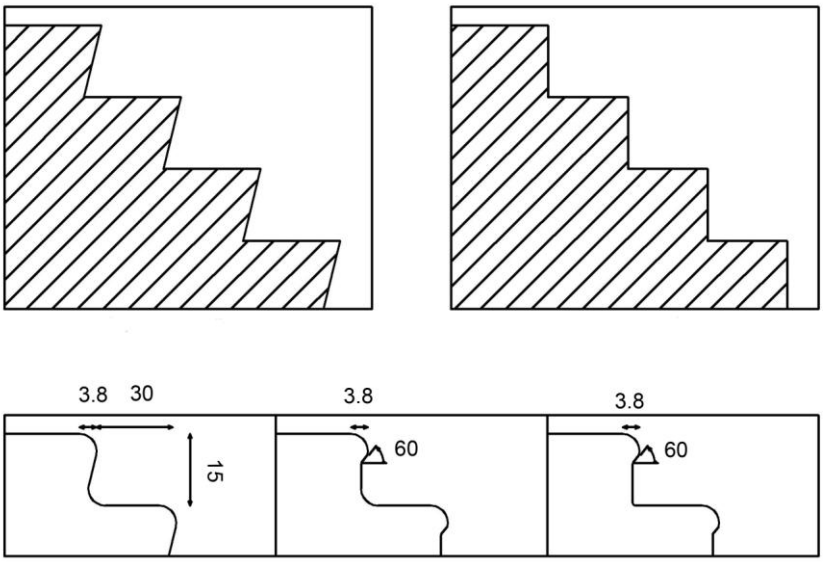

Figure 15: Dimensions for Stair Steps
Source: Adapted from Turkish Standarts

Material: The material used for stairs should be sturdy and non slippery, but not rough, to ease movement. In case tiles are used they should not have pointing larger than XX cm. The thread ends should have slip resistant materials at their edges.

Color and texture: The steps edges should be marked with color contrasting materials. If there are landings in staircase, the landings should be marked with color contrast. There should be tactile warning surfaces (tiles marking “Danger” “Attention”) at the foot and head of stairs.

Lighting: There should be enough lighting around the staircase. For ease of use in cases where natural lighting is not sufficient and after the sunset, artificial light should be considered.

Landings: If landings are necessary (for stairs with more than 12 steps) at least 150cm landing place should be provided.

Handrails: There should be handrails provided at both sides of the stairs. In case the stairs have landings the handrails should be present in the landings as well. The handrails should be continuous throughout the stairs and should continue at least 30 cm beyond the end of the stairs. Handrails should be designed in two different levels at 70 cm from the ground for children and people using wheelchairs and at 90 cm from ground level for other users.

For wider stairs with an unobstructed width of 300 cm or more, there should be a continuous handrail in the middle.

The cross section of the handrails should facilitate their use such as they should be easy to grasp and slip resistant and at the same time should not have rough edges. Circular cross sections of 45-55 mm diameter are found to be better in ease of use.

The handrails should have enough color contrast with the surrounding environment. If the stairs run along a wall surface the distance between the handrail and the wall should be at least 4cm for smooth walls and 6cm for harsh walls

3.2.2.5. Doors:

The entrance doors should be open to visitors/employees/students at all times when the building operates. In cases where the main entrance is not accessible and there should be an alternate accessible entrance and this door should be open to all users at all times, too. In cases where the door is locked or coded the door key/code should be available upon request.

Shelter: The area from the walkway to the main entrance door should be fully sheltered and protected from weather conditions such as sun, rain, snow etc. In case a fully sheltered area cannot be provided partial shelters covering the main entrance gate is advisable.

Scooter parking: There should be enough space near the entrance for parking motorized scooters in case these cannot move inside the building.

Entrance door: The entrance door to the building should be accessible and easy to use. An accessible entrance door requires a clear width of minimum 82cm (90 cm preferred). For easier use a clear width of 120 cm is recommended. Automated sliding doors, push button hinge doors are recommended. Revolving doors should not be used.

Vestibule: If there is a vestibule for the entrance door, there should be a clear space of 150 to 150 cm in between both doors. The opening direction of the doors should not obstruct this clear space. It is recommended that vestibule doors operate automatically by a sensor device or by push button systems for ease of use.

Push button system: If push button system is used at entrance doors, the button should be raised and a clear signage and texture that can be identified easily. The system should be adjusted to give sufficient time to for a user with mobility problems to pass from the gate. In some cases, the user may require extra time to enter and for this reason a system to keep automatic doors open if needed should be integrated.

Doormat: If a doormat will be used at the entrance door, it should be placed in a way that will not hinder easy entry. Rather than directly putting the doormat on the floor tiling, sunken placements should be preferred. Fully sunken or partially sunken doormats where the vertical threshold does not exceed 1 cm do not cause accessibility problems.

Material and color: The entrance door should create enough color contrast with the surroundings. If a translucent material such as glass is used at the entrance gate there should be a contrasting color band at eye level and it should be placed 80 to 100 cm high from the floor level.

Door handle: The height of the door handle should be at 90-100 cm from the floor level. The shape of the door handle should be easy to grasp and to operate. In terms of easy operability, Persons should be able to use the door handle with a closed fist and by applying no significant force such as a 6 year old child will be able to open.

Door systems: If automatic doors are used, it is desirable that they have security systems with both audible and visual warnings when they are activated. (for example, a red “doors are closing” text flashing along with an audio sound saying “doors are closing”.

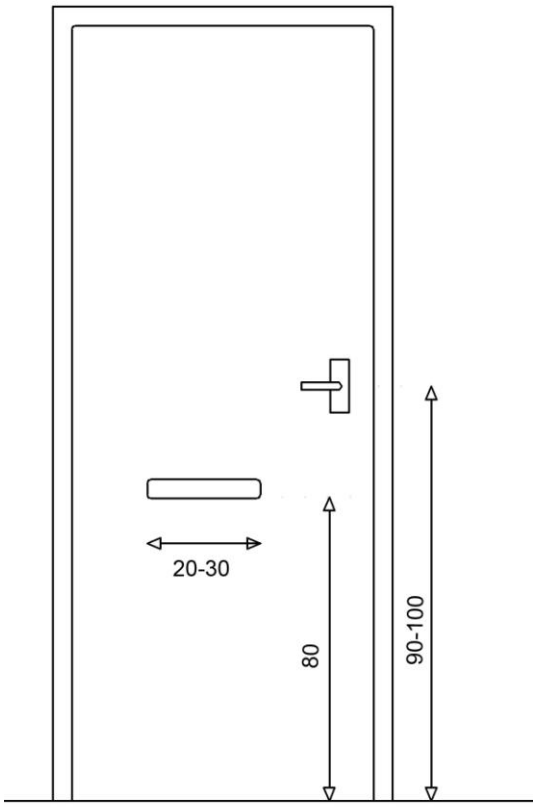

Figure 16: Door and Door Handle Dimensions
Source: Adapted fromTurkish Standarts

Turkish Standard offers 100-110 cm door handle height, and 80 cm height and 20-30 cm width for supporting handle.

3.2.3. Circulation (horizontal and vertical movement)

The users should be able to move freely within a building. In multi-storey buildings or buildings with level differences on the same floor all spaces should be connected by means of accessible circulation units.

3.2.3.1. Horizontal movement (entrance halls, corridors)

Entrance halls:
The accessible entrance at the building should directly connect to the entrance hall or to the main circulation area. In cases where this is not possible there should be an accessible route from the entrance hall to the main circulation area. If that area is located at another floor the connection should be done in the form of ramps, lifts or elevators.

Geometry: The entrance hall should have a free space of minimum 150X150 cm and should have sufficient and proper information and support means for a visitor.

Information desks: Accessible information desks with information about the building in different forms such as visual maps, diagrams, large prints, or Braille embossed brochures or a staff able to communicate in sign language are helpful for visitors with different disabilities. These desks should have two levels one at 80 cm for users seated on a wheelchair.

If there are elevators or lifts at these halls, the area in front of these places should have 150 cm to 150 cm clear space.

Corridors:

Geometry: Corridors should have at least 150 cm of clear free space in width. (Turkish Standards offer 122cm, ADA offers 150 x 150 cm). In smaller halls, there should be an unobstructed free space of minimum 122 cm to 122 cm not counting furniture and other obstacles. In places where the corridors change direction, there should be a clear free of 150 cm to 150 cm available.

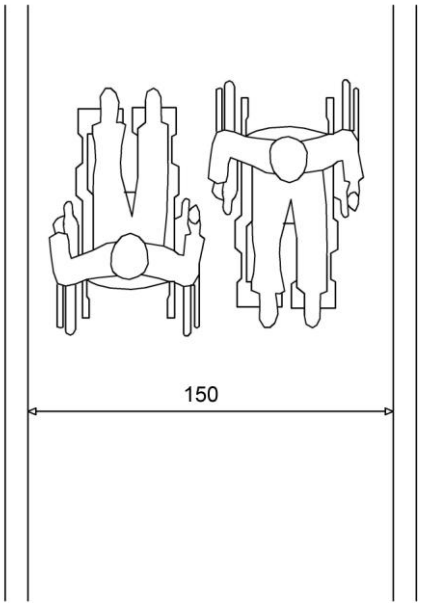

Figure 17: Dimensions of the Corridor
Source: Adapted from Turkish Standarts.

ADA and Turkish Standard offer 152.5 cm width

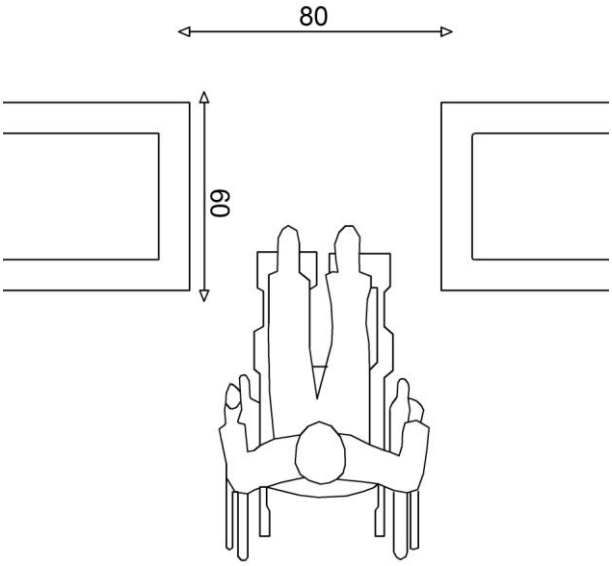

Figure 18: Doorway Dept and Width
Source: Adapted from Turkish Standarts

ADA and Turkish Standard offer 61 cm dept, and 81,5 cm width. 90cm according to Greek guidelines.

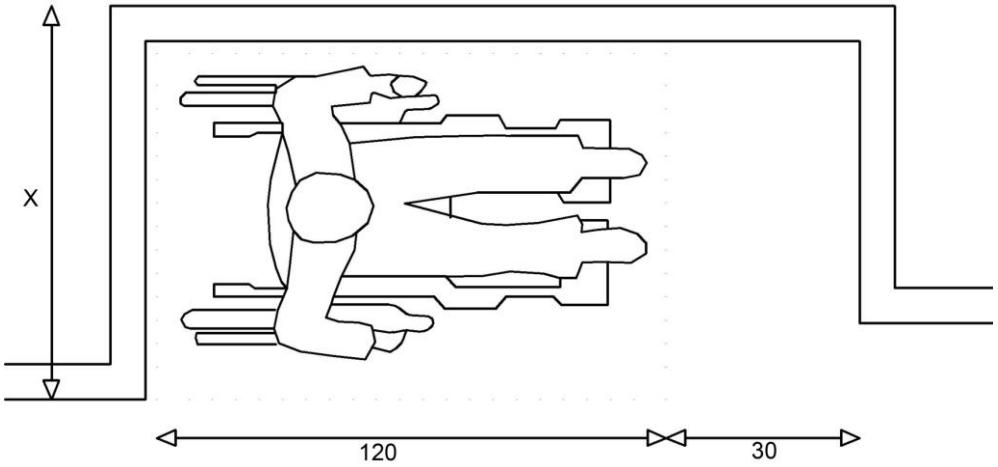

Figure 19: Dimensions of Rest Areas in Buildngs
Source: Adapted from Turkish Standarts

In the figure if X is more than 38 cm. turnover space should be at least 30 clear maneuver space in front of whellchail. Turkish Standard and ADA offer that if X is more than 38 cm. clear lenght of the rest area should be 122+30.5 cm.

Objects/appliances: All furniture and other appliance that may be present in the corridors should not create obstacles for free movement and thus should not be within the minimum clear space required. Objects such as fire extinguishers, water fountains, trashcans, etc., all should be placed and mounted along the same side of the corridors so that people with disabilities can follow the other wall without obstacles. Loose cables, hoses and the like may create dangerous situations for users with disabilities and therefore should be similarly mounted.

Material of corridors (Ground Surfaces and Walls):
Material used on floors should allow easy movement of people with disabilities. For this purpose, slip-resistant and smooth floor materials should be preferred. Polishing products used on floors may create dangerous situations for users with disabilities and therefore should be avoided. If tiled material is used on floors, the floors should be maintained regularly for prevention of raised or broken tiles that may create problems for movement of users with mobility constraints. If carpeting or mats are used on floors, these should be fixed at the sides or edges, so that they would not cause any trapping for users with mobility constraints.

Color and texture: The corridor floor should have a different colour and texture than adjacent surfaces. Use of tactile surface indicators if possible will benefit users with no or low vision. In case that the corridor is on a higher level than the adjacent surfaces, there should be a protective formation at its sides at least 15cm. high

Lighting: The corridors should be appropriately lit when the daylight is not enough or not provided.

Windows: If there are windows along the corridors, window bases should be 90 cm high from the floor.

3.2.4. **vertical movement**

If the building is more than a single storey or if there are level changes within the building, vertical connection between floors should be done by accessible means. The staircases should be appropriately designed and accessible elevators, lifts, or ramps should be used as alternate ways for vertical connection for users who cannot use stairs.

Elevators and lifts: If the vertical connection is provided by an elevator, it should serve all floors of the building and the geometry, operation and location of the elevator should be accessible.

Visibility: The elevator should be located in a visible place from the entrance hall. In case the elevator is not directly visible, there should be clear signage in the building directing the visitor to the elevator.

Geometry: Clear width of the elevator's door should be at least 86cm (90 cm preferred). Clear dimensions of the elevator cabs should be at least 90 to 137 cms (at least 110 x 140 according to Greek guidelines). If the elevator has internal door openings, these should not reduce the clear dimensions of the cabin. The elevator doors closing mechanism should provide enough time for a person with mobility impairments.

Elevator control systems: The elevator door should be able to be fixed in the open position for users who may need more time for access.

Button panels: The elevator button control panels outside and inside the cabin should be designed for accessibility by all users. The height of the buttons from the floor surface should be 90-120 cms. The buttons should be easily visible, lighted and easy to use. The buttons should be raised from the panel surface and their size should be on average 30 cms.

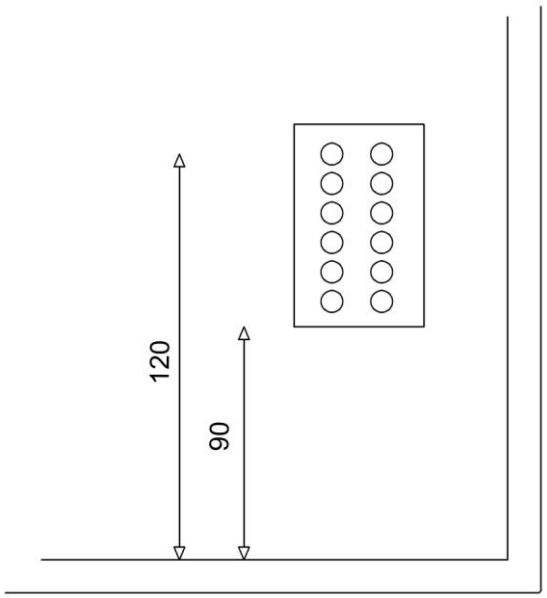

Figure 20: Dimensions of Lift Button Panels
Source: Adapted from Turkish Standarts

Turkish Standard offers 89-122cm, ADA offers 89-137 cm.

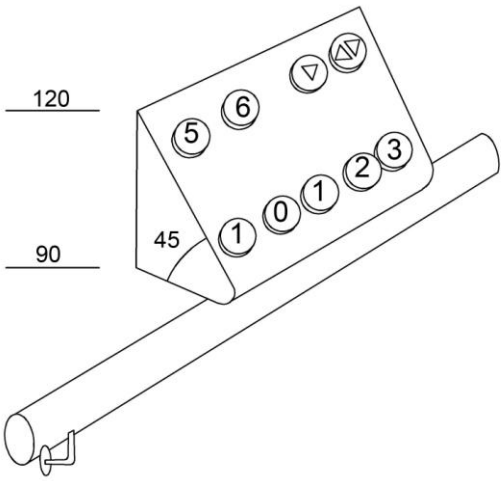

Figure 21: Button Panel Measures
Source: Adapted from Greek Guideline

Information: There should be audible announcement of floors. Both audible and visible signage should be integrated that informs about rise/descent and opening and closing of the elevator doors. There should be Braille signage next ot elevator's doors at each level. In case of an emergency, there should be means to communicate when in the elevator cabin by both audible and non-audible means. All elevators should be equipped by emergency phones with induction loops and volume control, visual signage and instructions for use in case of an emergency.

Cabin: The elevator's cabin's floor level should be at the same height with floor levels of the building. The elevator's door should create color contrast with the walls adjacent to the door. There should be grab bars placed in the elevator cabin at height of 90 and 120 cm from the floor surface.

Platform Lifts:
Platform lifts should be used in height differences within the building that are more than 120 cm and in cases where elevators are not used. In cases where the height difference is more than 120 cm, the platform lift should be of a closed type. Different types of platform lifts are present. However, platform lifts that permit users to go on with their own wheelchair should be preferred rather than the ones with folding chairs. If a platform lift that uses a folding chair is used, then an alternate wheelchair should be available at the level transported by the platform lift.

Stair lifts:
If elevators or platform lifts cannot be used and accessible ramps cannot be implemented, stair lifts which are lift mechanisms mounted on staircase can be used to ensure accessibility within the building. If stair lifts are used, there should be at least 90 cm clear width space remaining in the stairs after the lift. If these lifts cannot accommodate users' own wheelchairs but provide folded chairs, then there should be a wheelchair provided at the upper level. Stair lifts with folded chairs should be closed at times when they are not in use not to obstruct other users. In case of a power-outage, the lift mechanism should be able return automatically to the lower level it connects. There should be a maintenance schedule for these lifts and this schedule should be followed accurately to prevent any dangerous incidences or interruption in use due to maintenance problems.

3.2.5. Services/Equipment

- services general,
- restrooms, toilets, showers,
- service equipment
    - public phones,
    - water coolers
    - ATMs

3.2.5.1. restrooms, toilets, showers general:
There should be an accessible public restroom at every floor if possible. The accessible toilets present in the building should serve all users. If they have restricted use by some groups, as in the case of personnel toilets, student toilets, etc.; they should be evenly distributed among these types and each type should be evenly dispersed within the building for ease of use by users with mobility constraints. If there is only one accessible toilet, it should be gender neutral rather than located only in the women's or men's restrooms. The accessible toilet should be open for use for all times, however if it is locked or accessed by card-entry, cards or keys should be available at all times to users if needed.

Signage: There should be appropriate signage directing the user to the accessible toilet. The signage should also should have Braille embossing and bear international symbol of access.

Restrooms:

Geometry: Entrances from the corridors or halls to the restrooms should be unobstructed and leveled appropriately. The clear width of the door entering the restrooms where the accessible toilet or shower is located at should be 90 cms. There should be at least 150 cm x 150 cm clear space for wheelchair user maneuver. The entrance door should be automatic or operated by push-button mechanisms if possible rather than manual. If manual door is used, the shape of the door handle should be round and easy to grasp and easy to operate. Considering easy operability, it should not require significant amount of force to open and it should be operated using a closed fist. Door handles should be 90-100 cms high from the floor surface. If push button systems are used, the height of the push button mechanism should be 90-100 cms high from the floor surface and it should bear clear signage.

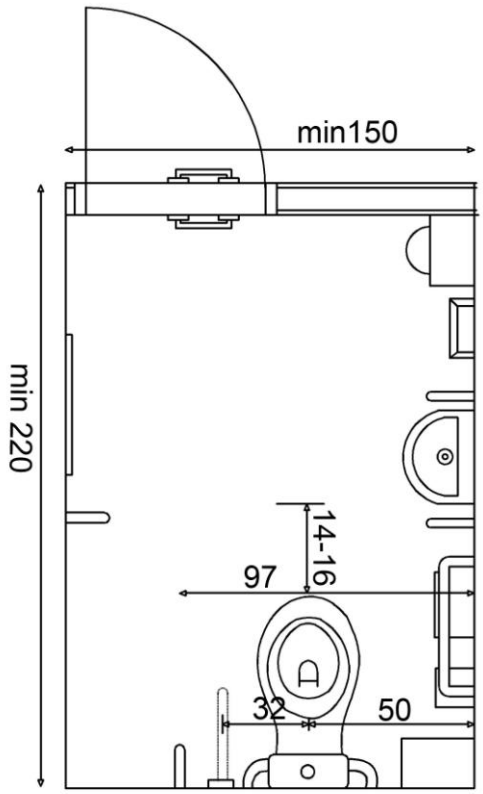

Figure 22: Toilet Dimensions
Source: Adapted from UK Guideline

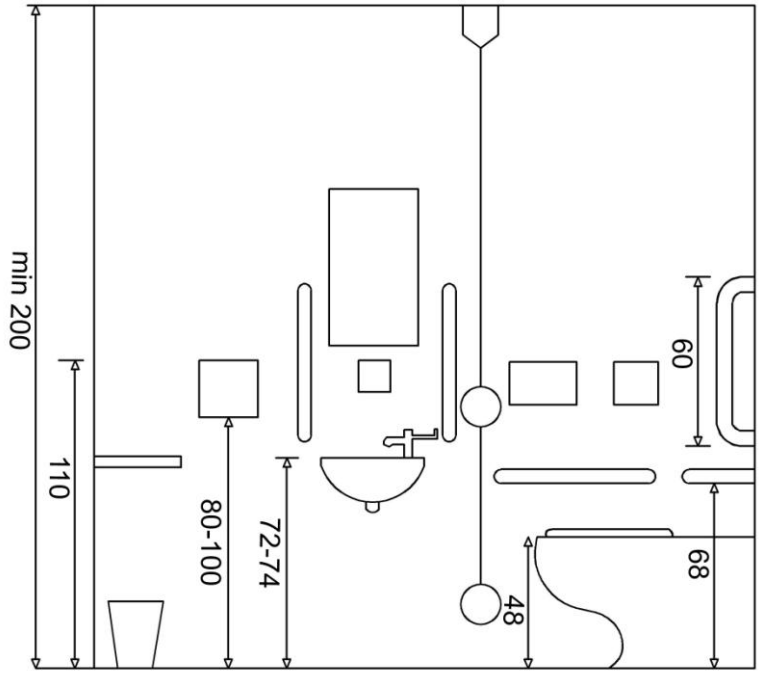

Figure 23: Toilet Furniture Dimensions
Source: Adapted from UK Guideline

If accessible restroom is located in a larger restroom as an individual toilet unit, the entrance to the toilet cabin should be similarly accessible as the main entrance door to the restroom.

If hinge system doors are used at the entrance to the toilet cabin, toilet cabin's doors should open outwards in order not to obstruct clear space within the cabin. Floor surfaces should be leveled at the entrances to the toilet cabins. Due to sanitary pipe system used (e.g. raised floors), if toilet cabin units levels are not at the same level with the floor surface at the restrooms, accessible bridging of the levels should be made by appropriately designed ramps. There should be at least 150cms to 150cms clear space free from obstructions in the accessible toilet cabin for wheelchair maneuver.

Handrails:
The toilets should be equipped with appropriate handrails. The handrails in the toilet cabin should be mounted 68 cms form the ground level. The length of the handrails should be 75 cms.

Toilet units: Whereas there are different toilet units that can be used in accessible toilets, wall mount types should be preferred over floor mount types since they do not create any obstacles where they connect to the floor. The toilet unit (water closet) should be 43-48 cms (for adults) and 28-38cm (ages through 3-8) high from the floor level. The toilet unit should be ergonomically designed.

Flush tanks: Flush tanks should be accessible too. They can be wall mounted, embedded or toilet mounted but in all case the flush tank should not reduce the amount of clear space in the toilet unit. Flush tank operation systems can be either automatic with sensors or manual with push or pull systems. In manual types, buttons should be located at accessible heights and locations, therefore high flush tank units should be avoided. The operating system of the flush should not require significant force to operate. The flush tank both should be ergonomically designed. If the flush tank is located behind the toilet unit, its form should form an anatomic back for the user and therefore should not protrude into the toilet seat area.

Washbasin:
The wash basin can be located in the restroom, or if the toilet cabin is located in a larger restroom it can be located along with other wash basins. Either way, it should not obstruct free movement space, should be of an ergonomic design and be accessible. The wash basin unit should have a clear space of 70 cms under the wash basin. If waste or water pipes are located under the wash basin these should not prohibit a wheelchair user's knee space. Hot water pipes that are under the wash basin should be appropriately insulated not to cause any danger to the user. The basin shape should be anatomical.

Taps: Whereas different types of taps can be used, level-operated mixers should be preferred for ease of use by a variety of users.

Soap dispensers: Soap dispensers should be located 86-90cms from the floor surface should be within reach of a seated user and should be easy to use.

Mirrors: Mirrors should be located at appropriate heights so that a person seated in a wheelchair can be able to use them. For this purpose, mirrors should be located at 100-110 cms from the floor and should be inclined downwards.

Shelves: Shelves should be provided for users with disabilities. A colostomy changing shelf to the side of the toilet unit at a height of 95cm and a lower shelf at 70cm above floor level by the wash basin should be available for users with disabilities.

Toilet paper dispensers: Toilet paper dispensers should be also accessible. Systems providing toilet paper by sheet that can be used only with one hand should be preferred for users that can use only one hand.

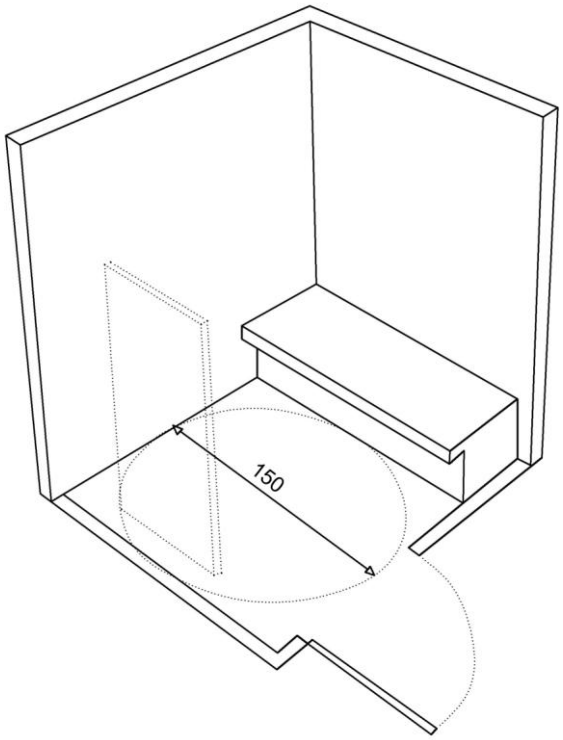

Figure 24: Restroom Dimensions
Source: Adapted from ADA Standarts

Showers:
If the building accommodates shower facilities, there should be accessible showers as well. The floor surfaces in showers should ensure proper drainage of water. Accessible showers should have leveled entry, folding seats and grab rails for use by people with mobility constraints. The grab rails should be 84-91cms high from the ground. The shower head height should be able to be adjusted in desired height minimum 120 cms form floor surface. Lever operated tap mixers should be available at 84-91cms from the ground surface. An alarm system in case of emergency which contains a cordon placed around the room, parallel to the ground should be integrated.

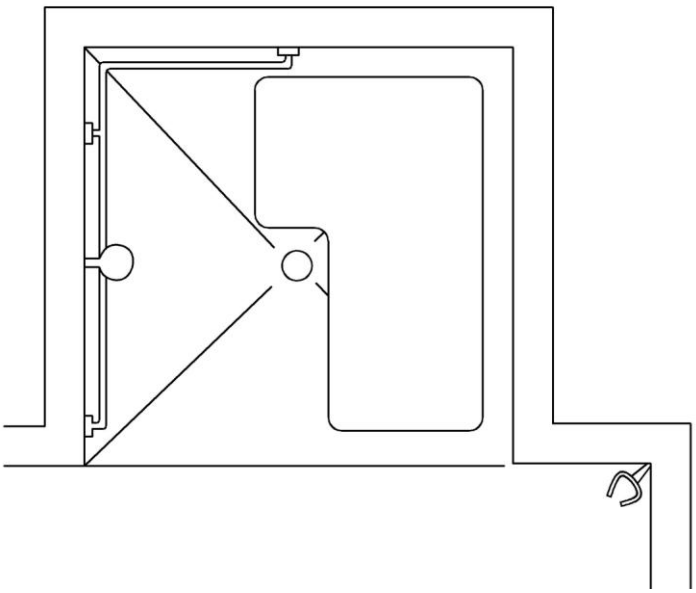

Figure 25: Location of Shower Facilities
Source: Adapted from ADA Standarts

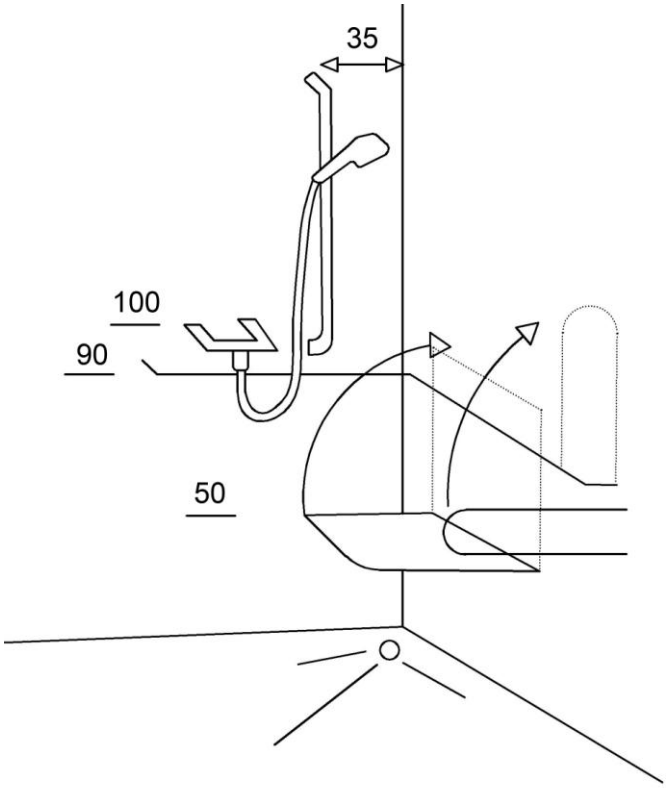

Figure 26 Dimensions for Shower Facilities
Source: Adapted from Greek guideline

Hallways:
If there are hallways in the restrooms, dimensions of the clear space should be at least 150 cm x 150 cm.

Material:
Surface material used on restroom floors should be slip-resistant, and colour contrast should be provided. .

Lighting:
There should be sufficient lighting in the restrooms.

Color: There should be a color contrast between toilet cabin doors and other adjacent surfaces including walls and floors. There should be enough colour contrast provided between the equipment and the walls.

Emergency cases: The toilet and shower door, even when locked from inside, should be operable from outside in case of an emergency

There should be a room for baby-care.

Service equipment public phones,
There should be one accessible public phone per building. The telephone unit, either located in a telephone booth or separately, should be 120 cm high from the ground and should have 130 to 130 cm free space in front of it. The buttons of the telephone should be 80-120 cms (ADA offers 122cm max, Turkish Standard offers 122-137cm) from the ground level. The telephone should have buttons embossed in Braille and should be compatible with hearing aids. The volume of the telephone should be adjusted if needed. The telephone should be equipped with a textphone.

The telephone should have proper signage. There should be phone books located at a suitable height to reach preferably not higher than 120 cm. The telephone cord should be longer than 75 cms. Visual messages on the boot should be easily visible by wheelchair users. The place of the messages should be located on an appropriate height (at most 1.2m. from ground).Information should be provided also in audible format. There should be an induction loop for people using hearing aids. The volume could be adjustable. Buttons should also be in Braille.

Water coolers
If there are drinking water coolers are located in the building, these should be accessible as well. The clear height from the ground level should be 70 cms and there should be 76 cm to 120 cm free space in front of them. The height of the water cooler's operating button should be 86-91 cms high from the ground level. The type of the operating system used for water coolers should be easy to use and the operating button should be 90-120 cms from the ground level.

ATMs

ATMs should be accessible for people with disabilities. There should be at least 130cmx130cm available space in front of ATM. Enough space should be provided for seated users. ATM should be designed for facilitation of a seated user or a user with short height.

Buttons of ATM should be in Braille. The visual messages displayed could be read by wheelchair users, Buttons and card receiver should be placed in at a height less than 1,2m. from the ground. The information in audible format should be available.

Emergency cases

emergency exits: The building should have at least one accessible emergency exits. There should be accessible emergency exits at every floor and they should directly lead outside. If the building has a terrace that can be used in an emergency case, it should be accessible as well.

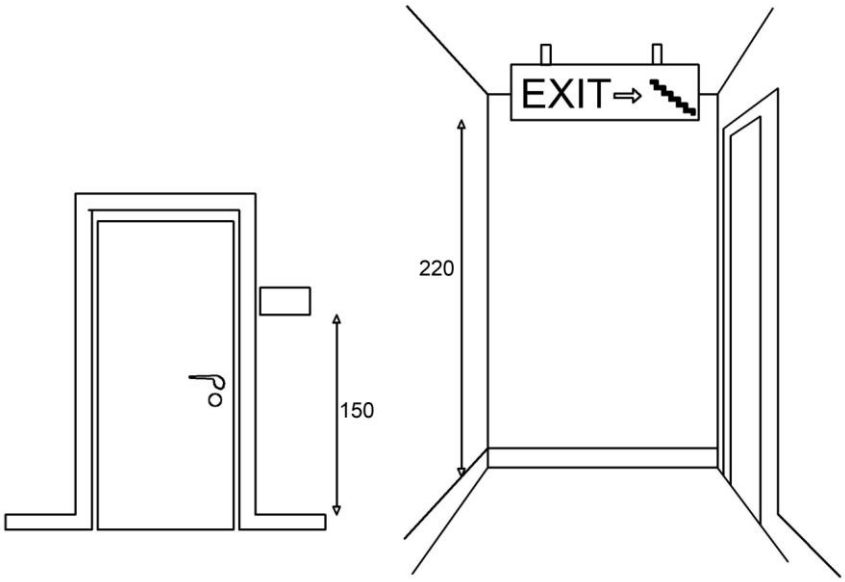

Figure 27: Dimensions of Emergency Exits
Source: Adapted from Greek Guideline

Greek Standard offers 140- 160cm for room entrance signage, and maximum 220cm for emergency exit signage. ADA offers maximum 203cm for emergency exit signage, SN 521 500 Norm offers 210 cm and Turkish standard offers 220 cm.

emergency alarms and alert systems: Emergency alarms and alert systems should refer to users with different abilities. Both light and audible alarms should be provided for accessibility. The alarm should be visible from all rooms of the building. The alarm systems should be easily activated by all users if needed and be located at accessible locations.

emergency evacuation: Emergency evacuation plans for buildings should be studied both for the general public and for people with disabilities. Special emergency evacuation arrangements should be available for people with disabilities. The information about the building's evacuation process should be conceivable to all people with disabilities and therefore should be available in written, audio, visual, large text, Braille or pictogram formats. For wheelchair users, special wheelchairs should be provided for transportation of people with disabilities in case of an emergency evacuation. Firesafety studies for buildings should be done and updated regularly. Any provisions, independent from the building's electric supply should be provided with clear dimensions.

Signage

Signage throughout the building is an important factor determining accessibility of the building. A building map indicating available spaces and services will be helpful for users with or without disabilities. Such a map provided should refer to different abilities and therefore should be available in different formats.

For users with vision problems, a tactile map is necessary. Use of schematic pictograms will help users with low vision, who are deaf, and who have mental disabilities. Such maps should indicate accessible areas and routes within the building so that users with disabilities can know which areas they and reach and which routes they should take. Such maps should be available near the entrance of the building or at the entrance hall where they are clearly visible for visitors. Having these maps near vertical circulation areas at every floor, such as at elevator halls will be helpful to navigate within the building. Similarly, a clear signage indicating different uses of the rooms and spaces within the building should be provided for accessibility.

These signs should be located at spaces at circulation areas such as corridors and halls and also near the doors to individual rooms. These signs should be located 140-160 cms from the floor or should be clearly visible for users with disabilities. The letter's size should be 4cm. There should be color contrast with the background and the foreground of the signs so that they are clearly visible for everyone. Also the surface wall or door the sign is located on should be in a different color than the sign plate so that the sign is clearly visible. Tactile characters or Braille should be preferred for users with vision problems. Use of pictograms, since they are easier to understand, should benefit users with hearing problems or mental disabilities. These signs should have anti-reflective surface. Numbering of rooms within a building is another factor that helps easier way finding. This information about the room number, floor within the building and the name of the rooms (e.g. "office 410 in the Department of Transportation, 2nd floor") should be also provided at the front desk.

Acoustics

Acoustics within indoor spaces are of great importance especially for users with hearing problems. Good acoustics in places such as reception, public areas of the building, and in the educational settings can facilitate communication of people with low

hearing. A measure for good acoustics is an area with non-reflecting surfaces and with environment noise that does not exceed 35 decibels. In some cases, presence of a quiet room where a confidential discussion with a person with hearing problems can take place might be necessary. Induction loops, a term used for electromagnetic systems, when integrated in interior spaces, can provide hearing assistance for hearing aid users where needed.

Lighting

Lighting of the indoor environments is important determinants of their accessibility. Being able to see the surrounding environment will help prevent dangerous accidents and will ease movement of users with mobility constraints. Sufficient lighting will ease movement of users with low vision within the building. For users who have speaking and hearing problems and thus rely on sign language, sufficient lighting is fundamental spatial requirement as well.

If the area is lit by natural lighting, arrangements of artificial lighting in these areas after sunset hours should be implemented. Some areas may require artificial lighting during the daytime in addition to after sunset hours.

In cases where artificial lighting is needed, the operation of these easy to use and manual buttons should be accessible. For manual operated lights, the buttons should be 106 cm. from the ground surface. Sensor operated lights may be an option to manual ones and if located appropriately, they might be an option over manual ones.

Closed spaces:

- **educational/ academic /employee rooms and halls**
- **classrooms, labs, studios**
- **offices**
- **amphitheaters and conference halls,**
- **gastronomic halls (dining halls, cafeterias, cafes)**
- **transaction areas (shops, banks, kioks)**

3.2.6 Classrooms and Labs

Classrooms, labs, studios are examples of the most commonly found educational settings in higher education environments. Since one of the main purposes of universities is education, the accessibility of these areas are very important for providing equal opportunity for all students including students with disabilities.

Even though it is very desirable to have accessibility to all classrooms, labs, and studios on campus, in some cases, especially if the campus buildings are designed with no special focus on accessibility, it can be difficult to have access to all educational settings. In this case, as many as possible educational rooms should be redesigned to provide accessibility. In all cases, scheduling of classes should be done

so that students with disabilities should have accessible classrooms in their all courses, practices, or lab-works.

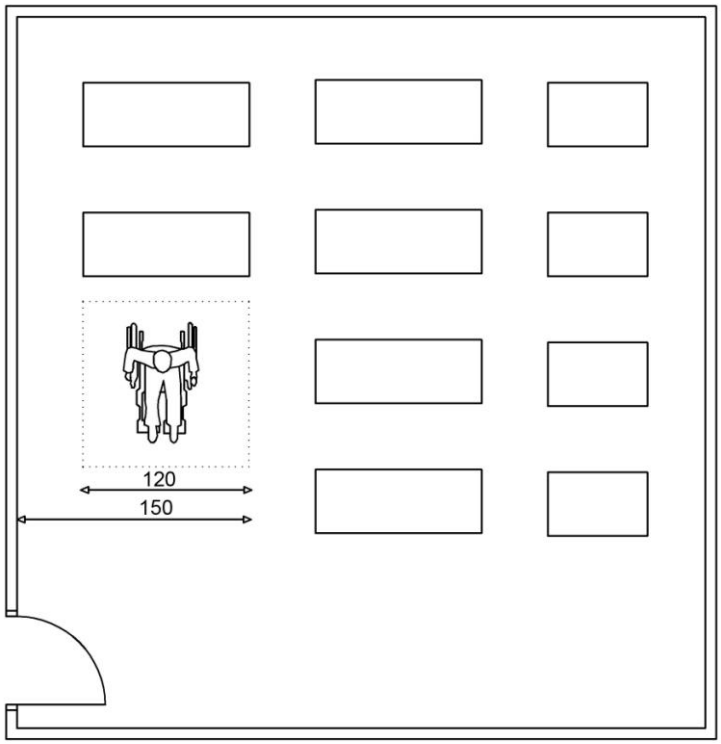

Figure 28: Classroom Dimensions for Wheelchair Users

Entry and access: A basic requirement for these educational settings is access to these areas. The classrooms, labs or studios should be all located on accessible routes and at accessible locations. The entrance to the classroom, lab or studio should be accessible as well with no vertical height thresholds or horizontal gaps. In case of height differences, appropriate ramp arrangements should be implemented. In case there are vertical thresholds less than 5 cms such as in cases where different materials merge together, and these areas should be bridged with smaller ramps to the same level.

Doors: The clear width of the door to these areas should be minimum 82cm (90 cm preferred). The door can be either manual, push button, automatic however in either case the operation system should be accessible and for ease of use push button or automatic doors should be preferred over manual ones.

If manual doors are used, the height of the door handles should be 90-100 cm from the ground level and the shape of the door handle should allow operating easily. The door handle should be easy to use so that it can be operated with a closed fist.

Vestibule: If there is a vestibule for the entrance door, there should be a clear space of 150 to 150 cm in between both doors. The opening direction of the doors should not obstruct this clear space. It is recommended that vestibule doors operate automatically by a sensor device or by push button systems for ease of use.

Push button system: If push button system is used at entrance doors, the button should be raised and a clear signage and texture that can be identified easily. The system should be adjusted to give sufficient time to for a user with mobility problems to pass from the gate. In some cases, the user may require extra time to enter and for this reason a system to keep automatic doors open if needed should be integrated.

Doormat: If a doormat will be used at the entrance door, it should be placed in a way that will not hinder easy entry. Rather than directly putting the doormat on the floor tiling, sunken placements should be preferred. Fully sunken or partially sunken doormats where the vertical threshold does not exceed 1 cm do not cause accessibility problems.

Material and color: The entrance door should create enough color contrast with the surroundings. If a translucent material such as glass is used at the entrance gate there should be a contrasting color band at eye level and it should be placed 80 to 100 cm high from the floor level.

Door handle: The height of the door handle should be at 90-100 cm from the floor level. The shape of the door handle should be easy to grasp and to operate. In terms of easy operability, Persons should be able to use the door handle with a closed fist and by applying no significant force such as a 6 year old child will be able to open.

Door systems: If automatic doors are used, it is desirable that they have security systems with both audible and visual warnings when they are activated. (for example, a red “doors are closing” text flashing along with an audio sound saying “doors are closing”.

Surface material:
Material used on floors should allow easy movement of people with disabilities. For this purpose, slip-resistant and smooth floor materials should be preferred. Polishing products used on floors may create dangerous situations for users with disabilities and therefore should be avoided. If tiled material is used on floors, the floors should be maintained regularly for prevention of raised or broken tiles that may create problems for movement of users with mobility constraints. If carpeting or mats are used on floors, these should be fixed at the sides or edges, so that they would not cause any trapping for users with mobility constraints.

Furniture: In classrooms, labs, or studios seating and furniture should be flexible and easy to move within the room if it is needed to facilitate their use by people with disabilities and different attributes.

If fixed furniture is used, there should be a special area designated for wheelchair use, preferably close to the entrance. Enough space should be provided within the room greater than 90 cms, preferably 120 cms to circulate within the room for users with mobility constraints. A clear space of 150cm to 150 cms should be provided for wheelchair maneuver within the room.

If fixed desks are used in educational settings like classrooms, labs, and studios, desks should be provided where the height of clear space underneath the desk should be 70 cms from the ground so that a wheelchair user can comfortably fit under.

The furniture used should create color contrast for easy identification by people with low vision.

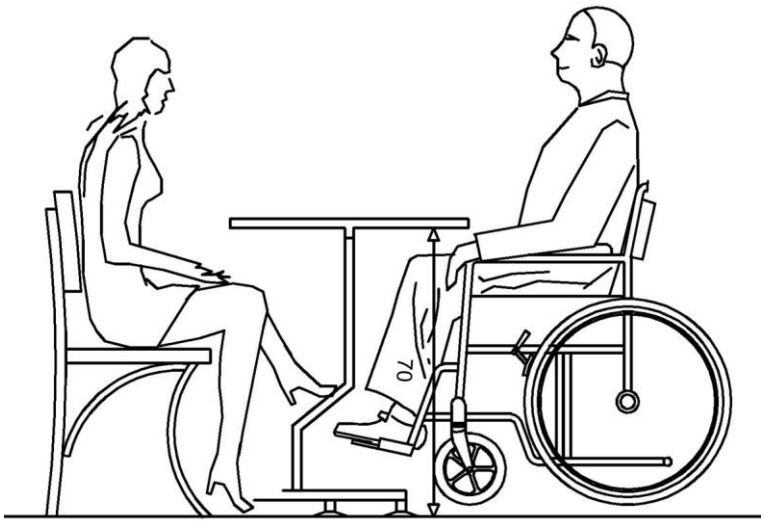

Figure 29: Dimensions of Tables
Source: Adapted from ADA and Turkish Standard

Windows: The lower level of windows used in classrooms, labs, or studios should have 90 cms from the ground surface so that users seated in wheelchairs can easily see outside. If blinds or curtains are used on windows, these should be easily operable by users with disabilities including ones using wheelchair.

Lighting: The offices, classes should be appropriately lit when the daylight is not enough or not provided.

3.2.7. Offices

Accessibility of office spaces in universities are important for providing accessibility to university staff with disabilities and mobility constraints who work in these spaces and also for university students with disabilities who may need to use these spaces as a part of their educational procedure such as in cases like visiting student affairs offices or a professor in his/her office. Graduate students may be working in universities office if they are also a part of university staff and may require accessible offices, too. For above mentioned reasons, as many university offices as possible should be accessible and offices where frequent use by users with disabilities is expected should be modified to provide all accessibility measures for all types of disabilities.

Entry and access: Accessible office spaces should be located on accessible routes and locations and the entrance to these buildings or rooms should be free of barriers with clear space provided for movement. The entrance to these offices should be accessible with no vertical height thresholds or horizontal gaps. In case of height differences, appropriate ramp arrangements should be implemented. In case there are vertical thresholds less than 5 cms such as in cases where different materials merge together, and these areas should be bridged with smaller ramps to the same level.

Doors: The clear width of the door opening to these areas should be minimum 82 cm. (90 cm preferred). The operation system of the doors should be accessible.

The entrance door should be automatic or operated by push-button mechanisms if possible rather than manual. If manual door is used, the shape of the door handle should be round and easy to grasp and easy to operate. Considering easy operability, it should not require significant amount of force to open and it should be operated using a closed fist. Door handles should be 90-100 cm high from the floor surface. If push button systems are used, the height of the push button mechanism should be 90-100 cm high from the floor surface and it should bear clear signage.

Surface material: Surface material used on office floors should be slip-resistant, and colour contrast should be provided.

Furniture: Furniture used in office spaces should be flexible and easy to move within the room if it is needed to facilitate their use by people with disabilities and different attributes. If fixed furniture is used, there should be a special area designated for wheelchair use, preferably close to the entrance. Enough space should be provided within the room greater than 90 cms, preferably 120 cms to circulate within the room for users with mobility constraints. A clear space of 150cm to 150 cms should be provided for wheelchair maneuver within the room. (ADA offers 152.5x152.5 cms, Turkish Standard offers 150 x150 cms)

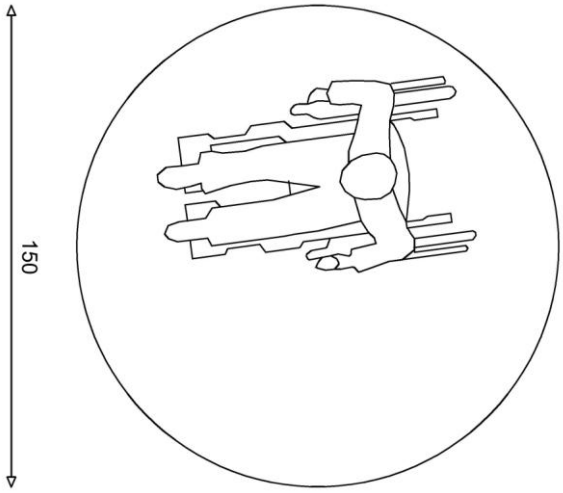

Figure 30: Free Space for Wheelchair Maneuver Within the Room
Source: Adapted from Turkish Standarts

In cases where fixed desks are used in offices, 70 cm knee space under the desk from the ground level should be provided so that a wheelchair user can comfortably fit under. (ADA and Greek guidelines require 70cm, Turkish Standard offers 68.5 cm)The furniture used should create color contrast for easy identification by people with low vision.

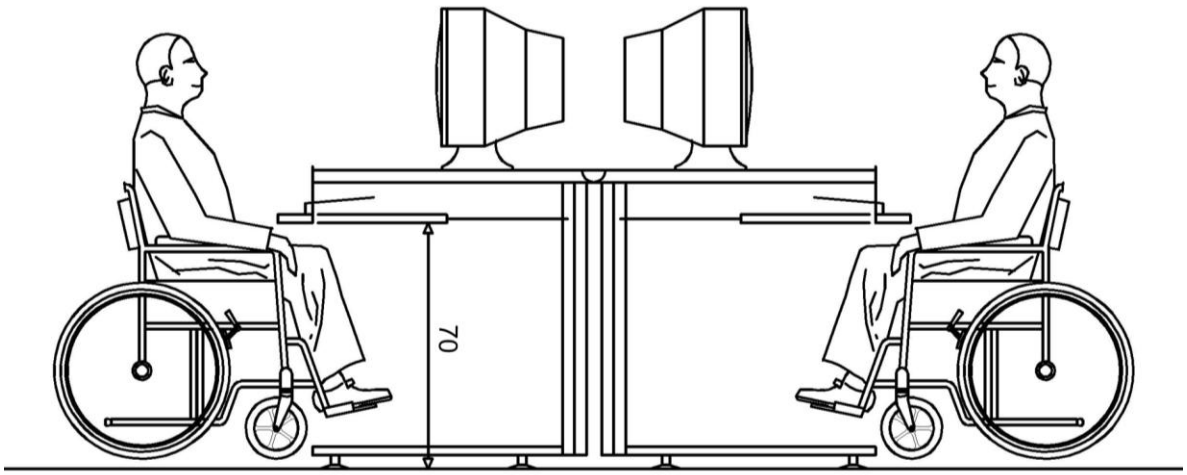

Figure 31: Office Table Dimensions
Source: Adapted from ADA and Turkish Standard.

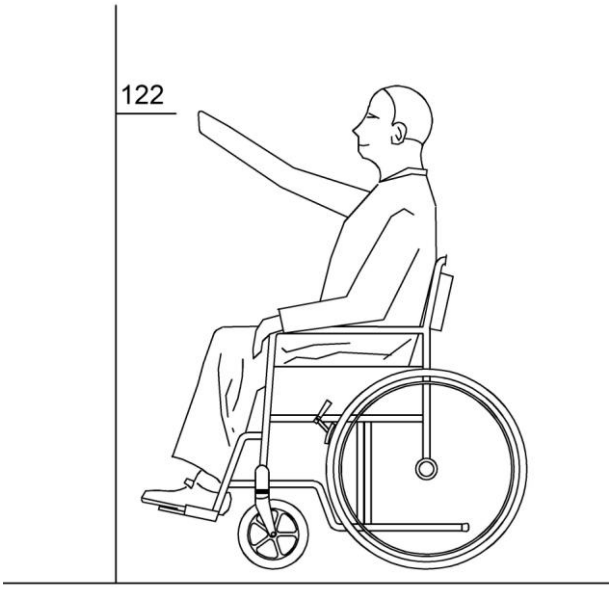

Figure 32: High Forward Reach Limit for Wheelchair User
Source: Adapted from Turkish Standarts

ADA and Turkish Standard offer 122 cm for high forward reach limit, while SN 521 500 Norm offers 140 cm.

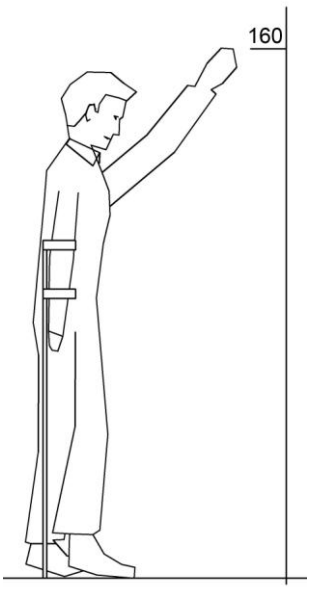

Figure 33: High Forward Reach Limit for Cructh User
Source: Adapted from SN 521 500 Norm

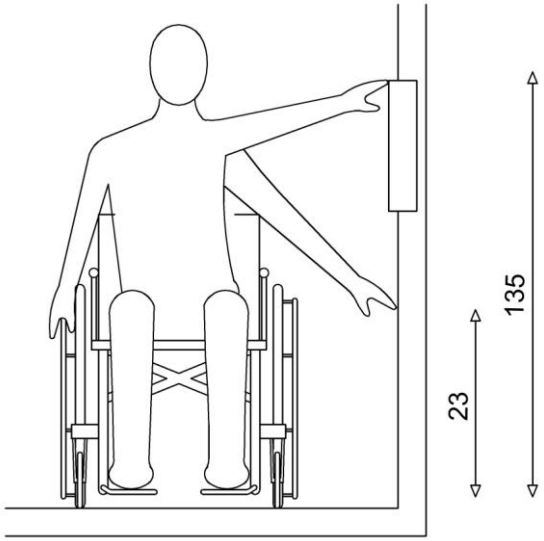

Figure 34: High and Low Sight Reach Limits for Wheelchair User
Source: Adapted from Turkish Standarts

ADA and Turkish Standard offer 23 cm for low limit and 137 cm for high limit, SN 521 500 Norm offers 140 cm for high limit. Greek standards consider as highest 130cm.

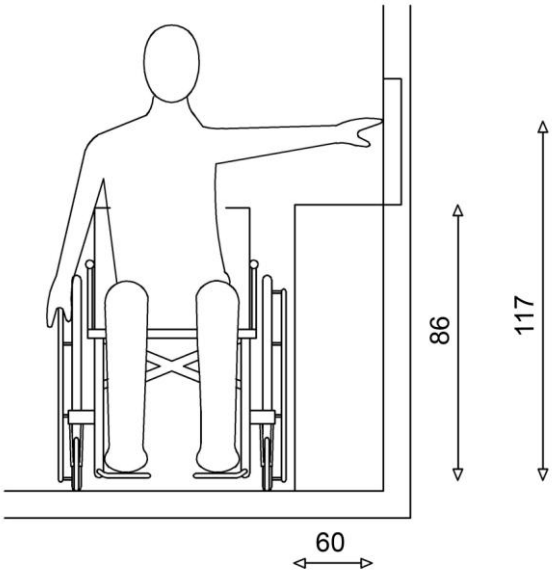

Figure 35: Maximum Side Reach over Obstruction
Source: Adapted from Turkish Standarts

ADA and Turkish Standard offer that he width of obstruction should be less than 61cm and height should be less than 86,5cm maximum reach level is 117 cm.

Windows: The lower level of windows used in classrooms, labs, or studios should have 90 cm from the ground surface so that users seated in wheelchairs can easily see outside. If blinds or curtains are used on windows, these should be easily operable by users with disabilities including ones using wheelchair.

Lighting: Lighting should be sufficient to ease movement, reading and similar activities. There should be additional artificial lighting systems available when needed.

3.2.8. Amphitheaters, Conference Halls

Different than classrooms, labs or studios, in amphitheaters, amphi-classrooms and conference halls, there is a designed slope integrated within the room. Whereas this designed slope may ease visibility of the stage, the lecturer, or the board, special arrangements may be required for access to and within the room.

Accessible seating: The level changes within these type of rooms should be accessibly designed if possible. In cases, where the slope of within the room is high, this may not be easily possible. In these cases, accessible seats should be provided at accessible locations from the entrances to these rooms. Accessible seats at the back, at the middle aisle and in the front are common solutions observed in existing amphi-type rooms modified for accessibility. In cases fixed seating is used, ample space underneath and adjacent to the desk should be provided for wheelchair users. In some cases, flexible, moveable seats may be preferred since they can be moved in order to facilitate its use by people with disabilities and different attributes.

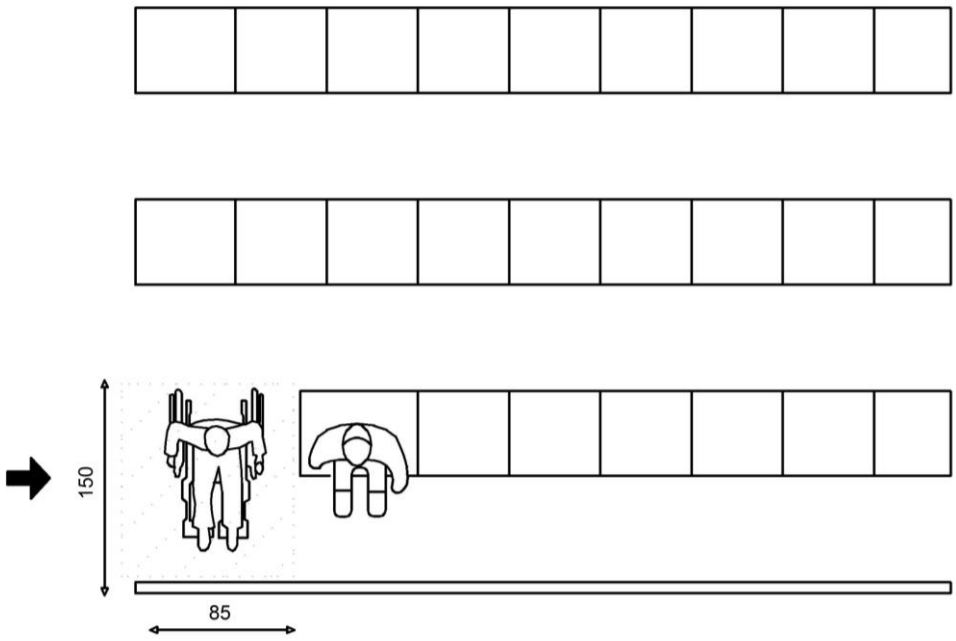

Figure 36: Necessary Clear Space Requirement for the Wheelchair User to Maneuver
Source: Adapted from Standarts of Greek Ministry of Health. Greek Standard offers 84 x 152,5 cm clear space for wheelchair.

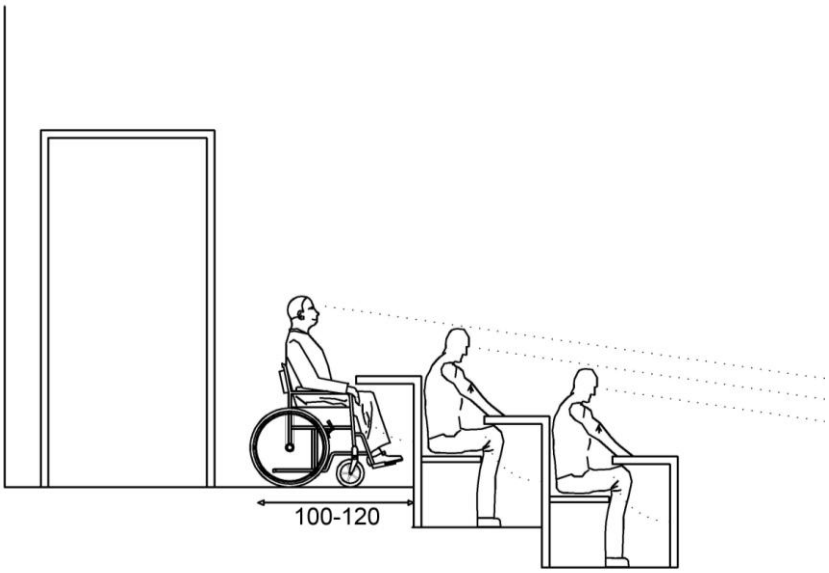

Figure 37: Whellchair Clear Space Requirement for Amphiteatres, Auditoriums and Stadiums
Source: Adapted from Standarts of Greek Ministry of Health

Greek Standard offers 120 cm minimum clear space and 70 cm height for desk. .

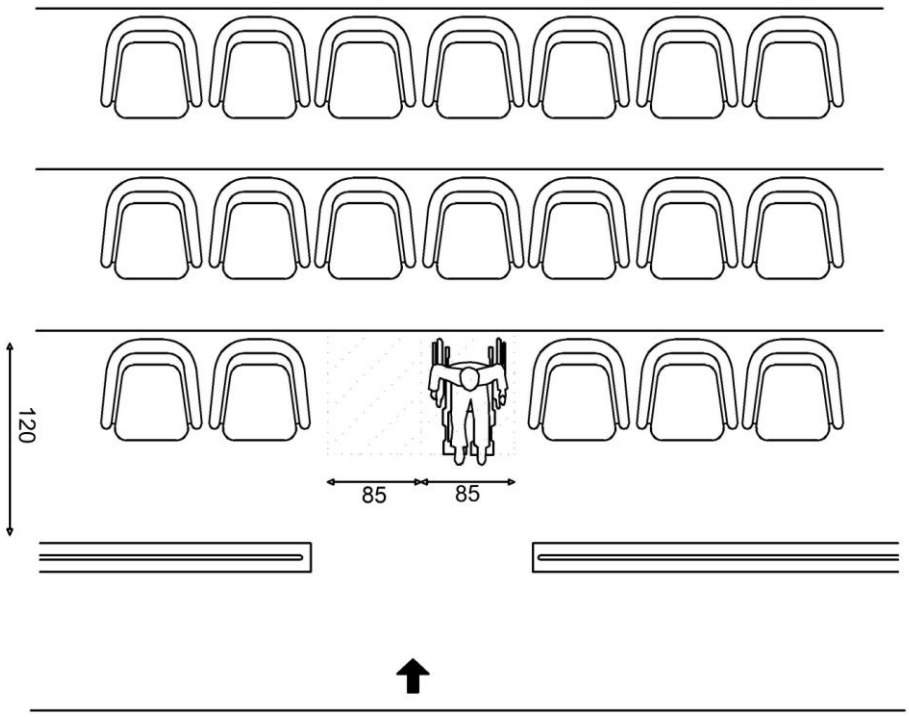

Figure 38: Whellchair Whellchair Clear Space Requirement for Conference Halls
Source: Adapted from Standarts of Greek Ministry of Health.

Greek Standard offers 84cm x 122 cm clear space.

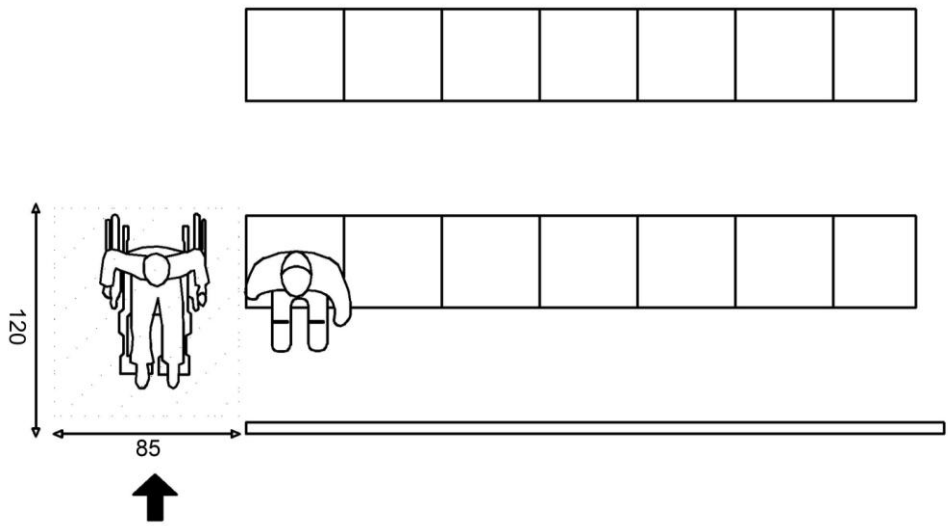

Figure 39: Wheelchair Location for Front Entrances and Dimensions of Clear Space (for Stadium, Auditorium, Amphiteatre)
Source: Adapted from Standarts of Greek Ministry of Health.

Greek Standard offers 84 x 122 cm clear space.

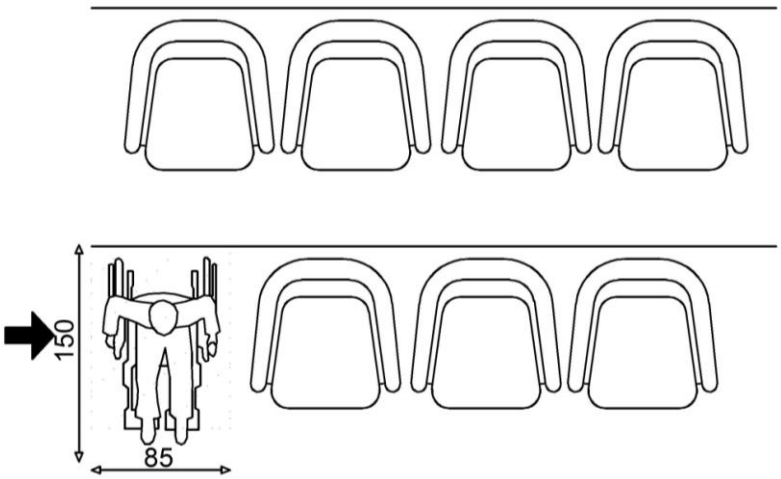

Figure 40: Clear Space Requirement for Wheelchair Maneouvre (Stadiums, Auditoriums, Amphiteatres)
Source: Adapted from Standarts of Greek Ministry of Health.

Greek Standard offers 84 x 152,5 cm clear space.

Entry and access: The entry to these halls should be free of any barriers and obstacles and should be appropriately leveled. Steps should be avoided at entrances. In cases where there are height differences at the entry to these halls, accessible modifications like ramps should be implemented. Small height differences, up to 5 cm should be leveled appropriately to prevent obstacles for users with disabilities.

Doors: The clear width of the door opening to these areas should be minimum 82 cm. (90 cm preferred). The operation system of the doors should be accessible.

The entrance door should be automatic or operated by push-button mechanisms if possible rather than manual. If manual door is used, the shape of the door handle should be round and easy to grasp and easy to operate. Considering easy operability, it should not require significant amount of force to open and it should be operated using a closed fist. Door handles should be 90-100 cm high from the floor surface. If push button systems are used, the height of the push button mechanism should be 90-100 cm high from the floor surface and it should bear clear signage.

Stairs and steps: If there are steps or stairs within the hall, these areas should be designed in step height and width according to requirements for accessibility of staircases.

Color: The furniture used in the hall should have color contrast. Any height differences, steps should bear a similar color contrast in order to prevent any dangerous accidents.

Geometry: There should be enough space, minimum 90 cm and preferably 120 cm for the accessible seating area. In these areas, and 150cm x 150 cm clear space should be provided for wheelchair user to maneuver.

Stage: If there is a stage in the hall, access from the main hall to the stage should be provided for users with disabilities. If this access cannot be provided form the main hall, access should be provided from the foyer or any other nearby space to the stage. There should be a moveable lower speaker stand available for wheelchair users, in case they may need to give a talk, or presentation on stage. Backstage area should be preferably accessible as well.

3.2.9. Gastronomic Rooms, Halls (Dining Halls, Cafeterias)

Gastronomic halls at university campuses which includes be sit-in or self-serve cafeterias, dining halls, and cafes, should be all accessible for all users with disabilities. Entrance to these areas, food serving, eating and service places should be all designed to provide accessibility.

Entrance: If there are height differences or horizontal gaps at the entrance to these areas, these should be designed in an accessible way.

Doors: The clear width of the door opening to these areas should be minimum 82 cm. (90 cm preferred). The operation system of the doors should be accessible.

The entrance door should be automatic or operated by push-button mechanisms if possible rather than manual. If manual door is used, the shape of the door handle should be round and easy to grasp and easy to operate. Considering easy operability, it should not require significant amount of force to open and it should be operated using a closed fist. Door handles should be 90-100 cm high from the floor surface. If push button systems are used, the height of the push button mechanism should be 90-100 cm high from the floor surface and it should bear clear signage.

Surface material:

Self-service area: In case the dining is of self service type, the service counter height should be 70 cm (for other users, double desk may be preferred with 70-90 cm) for users with wheelchairs to reach the trays, food, condiments, etc. easily.

If the self service area has a fixed route separated by bars, the clear space width in this area should be 120 cm for different users to circulate easier.

IF the self-serve area is not accessible and cannot be modified for accessibility for users with disabilities, sit-in service should be provided for users with mobility constraints.

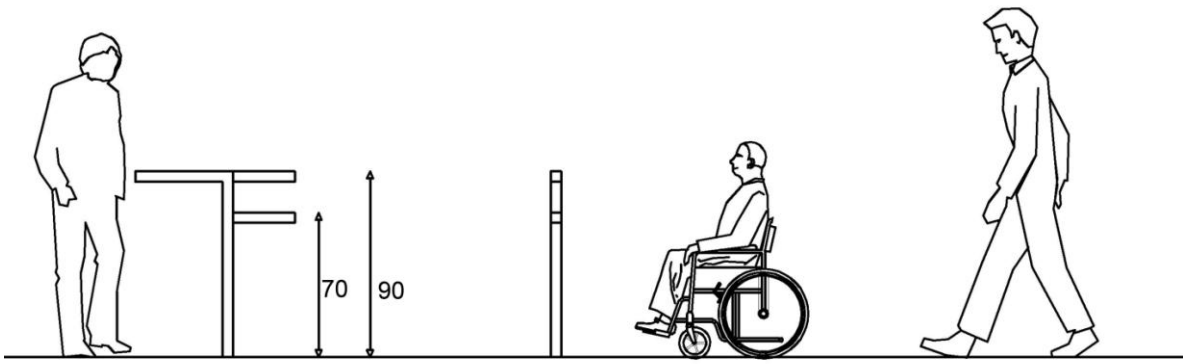

Figure 41: Dimensions of Cafeteria Desks

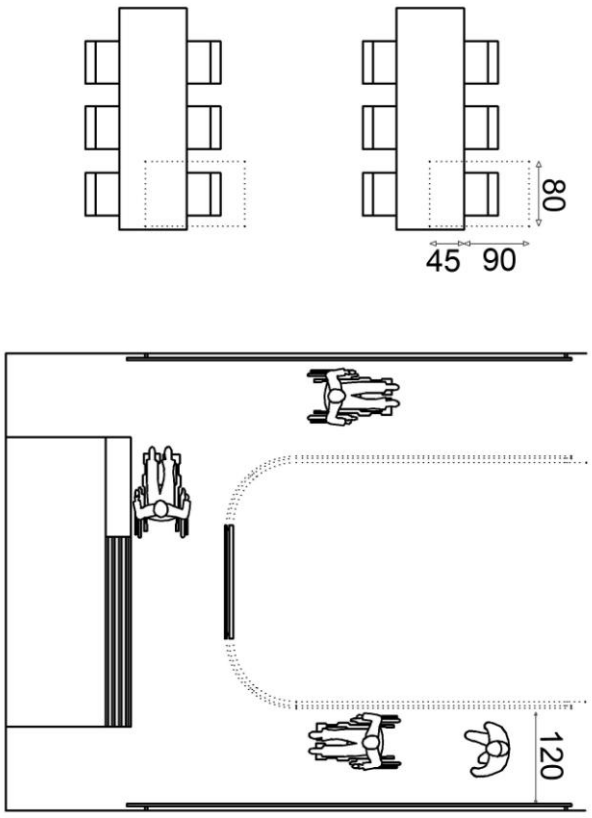

Figure 42: Furniture Location and Desk Design for Self Service Cafeteria
Source: Adapted from ADA and turkish Standard.

Furniture: Seating and tables should not be fixed so that they can be moved in order to facilitate their use by people with disabilities and different attributes. In case fixed furniture is used, there should be a special designated area for wheelchair users and this area should be located in an appropriate place not separate from other seating areas. The furniture should have color contrast with the surrounding environment for easy identification by people with low-vision.

Circulation: There should be enough space, minimum 90 cm and preferably 120 cm, for a wheelchair to circulate within the dining hall. For maneuvering within the hall, 150 cm to 150 cm of space is needed for wheelchair users.

Transaction: If the transactions at the dining hall are done at the cashier, contrary to paying at the table, these transaction areas should be accessible as well. Accessible desks should be provided by a lower desk with 70 cm from the ground surface. Accessible counters should be signified by international symbol of access.

Service: For service accessibility, there should be access to immediate visual and audible contact with the employee when necessary. The services provided should be informed in forms of written texts and signs.

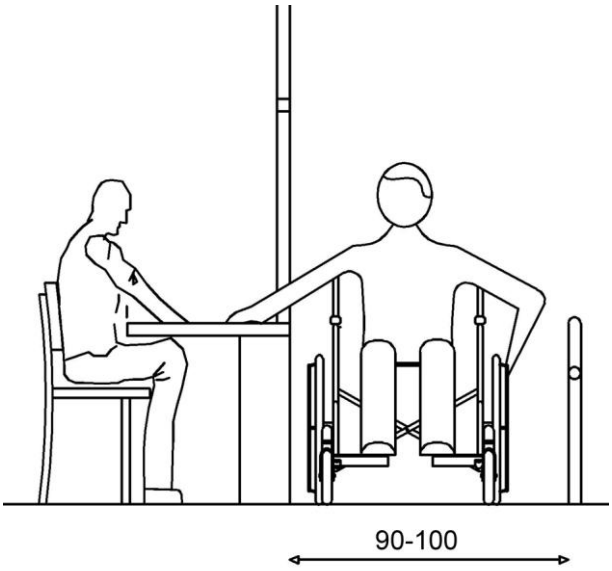

Figure 43: Dimensions of Transaction, Information and Reception Desk
Source: Adapted from Greek Standard

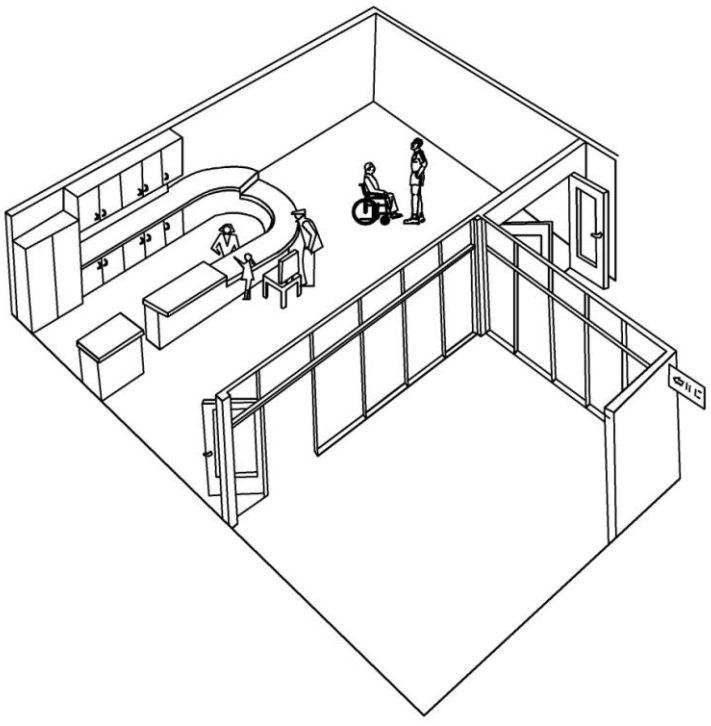

Figure 44: Cafe, Bank, Office and Halls for Special Purposes
Source: Adapted from ADA Standards

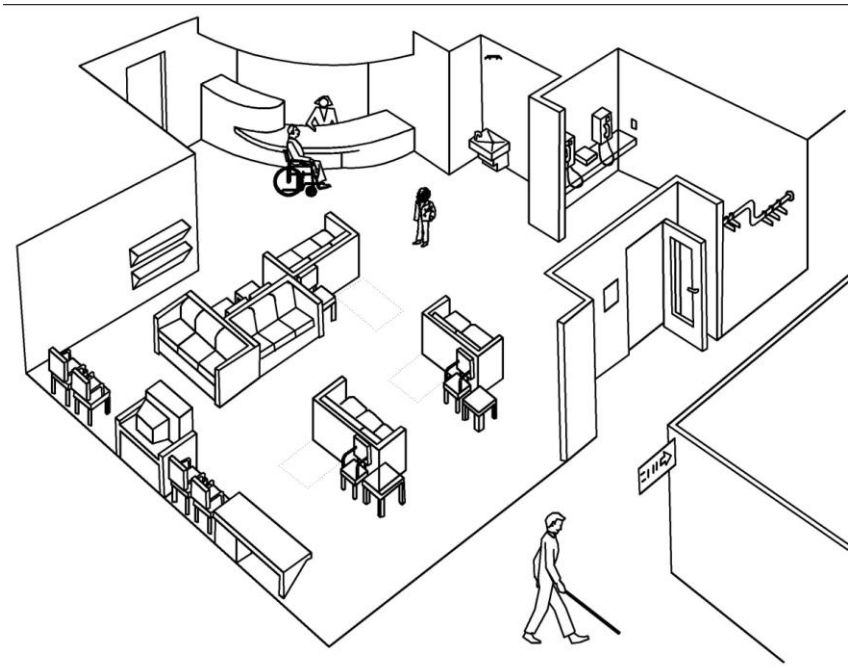

Figure 45: Public Building and Lounge Design
Source: Adapted from ADA Standards

Transaction, shops, banks, reception desks:

Stores, kiosks, banks and similar transaction and service areas on university campuses should have special arrangements to provide accessibility for users with disabilities. Whereas accessibility requirements may differ according to the type of the transaction and service space on campus, there are some general requirements which are valid irrespective of the type of the place.

The entrance to these areas should be accessible. They should be located on accessible routes and the entrance of the place should have no vertical obstacles that may limit entry. In case there are height differences at the entrance to these areas, they should be appropriately bridged.

Circulation: There should be enough space, minimum 90 cm. and preferably 120 cm,.for a wheelchair to circulate in the store. For maneuvering within the space, 150 cm x150 cm. of space is needed for wheelchair users.

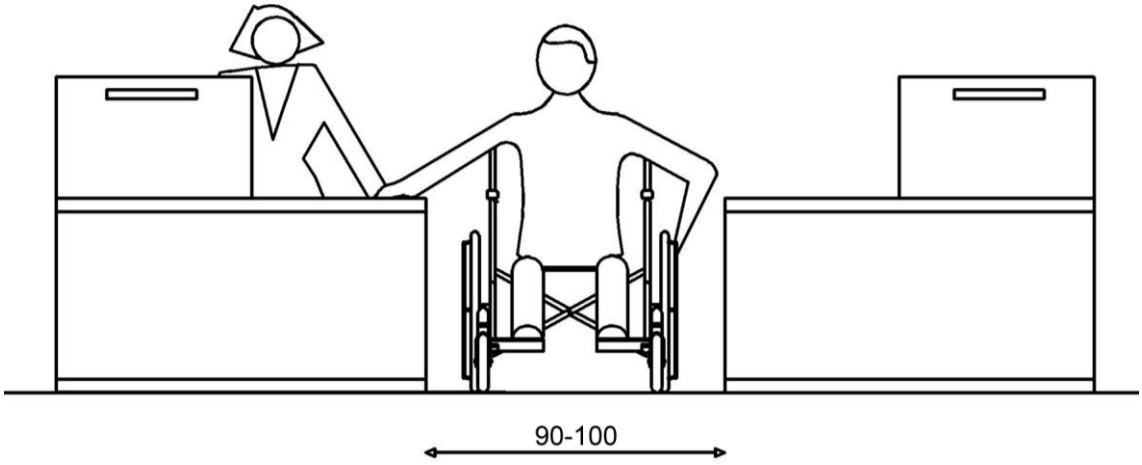

Figure 46: Clear Space between Information, Transaction and Reception Desk
Source: Adapted from Greek Standards

SN 521 500 Norm offers 80cm minimum width of clear space.

Transaction: The cashier desk at the transaction space should be accessible for approach and paying by a lower cashier desk that is 70 cms from the ground level. If there are multiple cashiers, at least one of them should be accessible by the same measure. In this case, accessible counters should be signified by international symbol of access.

Service: For service accessibility, there should be access to immediate visual and audible contact with the employee when necessary. The services provided should be informed in forms of written texts and signs.

3.2.10. General Issues

Employees working on campus should be informed about the needs of people with disabilities.

There should be employees who know ways to communicate with deaf people or people with hearing problems at information desks, if possible. Employees knowing sign language should be available on campus.

An individual with hearing problems may need to communicate through the use of fax machine. Employees should be informed about and trained for this probability.

Information available on campus should be also available in Braille, audible form, and enlarged text when possible.

In case audio-visual material is used, it should have subtitles as well.

Guide dogs should be permitted to enter the buildings when needed and provisions such as water supply for these dogs etc should be available.

In some cases, a portable device audibly guiding people with sight problems around the building can be necessary.

The university should have online information available through an accessible website.

3.3. Accessibility of the educational procedure

3.3.1. General services

- Medical services can be particularly important for users with disabilities. If such a service is provided by the university, all medical services and specialists should be accessible. Similarly, psychological support should be available through the university.
- University personnel should be trained on the particular needs of people with disabilities in the educational procedure.
- There should be sport teams and training targeted to people with disabilities.
- Special curricula for students with disabilities should be provided, if this is deemed necessary.
- There should be a volunteer team which assists students with disabilities in their everyday educational tasks exist.
- There should be accessible website referring specifically to the provisions to students with disabilities provided.
- All information concerning educational activities, books and other material should be provided in alternative forms and should be available through the university's website –which must be accessible to people with disabilities - and handed to students with disabilities in print or through e-mail.
- Special care should be taken by the university so that students with disabilities can successfully complete their practical exercise, if that is required by the school's curriculum. This also implies that an accessible working environment should be found by the university.
- There should be an ongoing cooperation with university schools abroad so that students with disabilities can take part in student exchange programs.
- Unobstructed access to all forms of social activity occurring in the University's premises should be ensured.

- There should be an ongoing cooperation with association of people with disabilities at local and national levels.
- There should be provisions for the students with disabilities to be able to choose the pace of his/her studies.
- They should be able to follow courses through e-learning procedures if possible.

3.3.2. Attending lectures

3.3.2.1. Students with visual impairments

- Books (main course book and assistive reading material) in Braille, large print or audible format (depending on individual student's needs)
- Provision inside buildings of audible information and updates, such as announcements, timetables, schedule changes etc.
- Creation of an accessible website, which will be regularly updated in order to include all necessary information.
- Assistance in taking notes during lectures (recording or personal assistance)
- No use of red and green ink (for colour-blind people)
- Avoid the verbal descriptions of visual concepts or descriptions based on colour differences during lectures
- Description of visual material used during lectures
- Assisting software and hardware should be available to students with sight problems.
- Use of assistive technology should be permitted in class.
- Volunteer network that can convert audible forms of written material should be created.
- Recording the lectures should be possible if necessary.
- University personnel including faculty, lecturers, and general staff should be trained on the particular needs of people with sight problems.
- Feedback on accessibility of the educational procedure should be requested from students with sight problems.

3.3.2.2. Students with hearing impairments

- Lot of visual information (not excessive and as clear as possible)
- Use of assistive technology in class (hearing aids, microphone equipment,

subtitle generator etc.)

- Sign language interpreter available at every lecture. If possible, one who is familiar with the specific terminology used at the lecture, as the sign language lacks in scientific vocabulary
- The lecturer's face should be easily visible to assist lip-reading.
- University personnel including faculty, lecturers, and general staff should be trained on the particular needs of people with hearing problems.
- Handouts should be provided to decrease the amount of writing a student has to do during the lecture.
- Feedback on accessibility of the educational procedure should be requested from students with hearing problems.

3.3.2.3. Students with mobility impairments

- Assistance should be provided to students with poor motor skills, if it is required.
- Assistive technology should be used in classes when needed.
- Handouts should be provided to decrease the amount of writing a student has to do during the lecture.
- Feedback on accessibility of the educational procedure should be requested from students with mobility impairments.
- Specific desk arrangements that allow the use to wheelchair users and students with mobility impairments (e.g. there are students who cannot fold their legs)

3.3.2.4. Students with dyslexia

At the beginning of the lecture, an overview should be provided so that students will familiarize themselves with the course material. Similarly a summary should be provided at the end of the course.

- If needed, the student should be able to record the lecture.
- Handouts should be provided to decrease the amount of writing a student has to do during the lecture. If possible handouts should be provided a few days prior to the lecture to allow for preparation. In case time is needed, the students should be given time to read the handouts if there are references to them during the lecture.

- Multiple ways of presenting information should be preferred such as videos, slides, practical demonstrations, as well as talking through text.
- New topics and concepts should be introduced clearly and examples should be provided during the lectures.
- During the lecture, regular pauses made be needed to allow students to catch up with the course content.
- If written material is provided the content should be clear and concise and the layout should be clear and simple. Patterned backgrounds should be avoided. Clear fonts such as Arial should be preferred. Excessive use of different font styles may be confusing to students with dyslexia and thus should be avoided. Use of paragraphs, headings, subheadings, bullet points and numbered lists in written materials may help understanding. In cases where highlighting is needed, rather than italics or underlined text, bold fonts should be preferred. Prints on color papers are found to help some dyslexic students to read easier, however too bold colors should be avoided. Green and red ink use should be avoided. Other than text, flowcharts, graphs diagrams should be used in presenting information in written form.
- Feedback on accessibility of the educational procedure should be requested from students with dyslexia.

3.3.3 Assessment of the student's knowledge of each subject

3.3.3.1. Students with visual impairments

- The students with sight problems should be permitted to present essays and thesis in an alternative format. Similarly, they should be allowed to replace written exams and essays with oral exams.
- Students with sight problems should be permitted to undergo formal assessment using adaptive technologies, in a separate room, using an amanuensis or reader and with the addition of extra time.
- Materials in Braille, large print or audible forms should be provided to them. If exam sheets are the required form of assessment, they should be adapted for their needs.

3.3.3.2. Students with hearing impairments

- Overly complicated language should not be used in materials provided in the assessment. Exam papers should be clear with a simple layout. Exam papers

that do not require extensive use of written language, such as multiple choice questionnaires, should be preferred. The students with hearing impairments should be permitted to have the questions rephrased, communicated by lip speaking. They may also need to take exams in a separate room with extra time given.

- Terminology should be adapted with the help of a sign language translator.
- Student should be allowed to have questions communicated in sign language and there should be a sign language interpreter available.

Students with speech impairments

- Students should be permitted to have questions communicated in alternative formats (written, sign language etc)
- A sign language interpreter should be always available if required
- Students should be permitted to take the exams in a separate room, if required
- Students should be permitted to use extra time if they asked for oral assessment
- Students should be able to request replacing oral exams by written exams and essays
- During oral assessments questions should be asked in such a way that short answers should be needed

3.3.3.3. Students who have mobility impairment

- Students should be allowed to use a reader or amanuensis and adaptive technology.
- If requested, the students should be allowed to provide papers in alternative formats
- The students may need more time to complete the examination or may need to take the exam in a separate room. In either case, they should be allowed.

3.3.3.4. Students who have dyslexia

- The questions should be worded in a clear and concise language.
- If assignments are given, the student should be provided with a clear hand in date for assignments.
- Students can be allowed to use electronic spellcheckers or dictionaries during exams.

- Based on the student's request, questions may be provided on audiotape. The student may be allowed to an amanuensis or reader and to mark the answers to multiple choice questions on the question paper rather than the answer sheet to save time
- Assessment papers should be provided to students with dyslexia in Arial 12 points font size with 1.5 spacing between lines and with a ragged right hand margin.
- Support provided to the students should be reviewed occasionally. If a student consistently misses deadlines, or their exam results are marked differently to their ability, their support should be reviewed.

For students who have a disability no listed above, there should be flexibility in the assessment process.

4. ACCESSING THE ACCESSIBILITY OF THE UNIVERSITY: INFRASTRUCTURE AND THE EDUCATIONAL PROCESS

During the ACTUS project a methodology for the assessment of accessibility offered by academic institutions was developed. This included the creation of 3 different checklists that aspire to cover the activities of the students within the University Campus. (Deliverable D2). All the checklists are very analytical in order to allow their use by researchers without previous experience on accessibility issues. Here the checklists are presented in Annex 6.3.

The first checklist concerns open spaces (pedestrian walkways, parking spaces, recreation areas and other outdoor facilities).

The use of the list facilitates the systematic identification and evaluation of the obstacles which could restrict the ability of movement of various categories of pedestrians. The identification and recording of obstacles is a fundamental prerequisite in order to establish proposals for their elimination.

The list includes various groups of “structural elements” of the open spaces and routes which may function as obstacles, such as:

- “bridging” different levels
- surface of footways
- walking routes
- equipment of footways and signage
    - footpaths
    - pedestrian crossings
    - controlled pedestrian crossings
    - bus stops
    - stairways
- access to public buildings
- telephone booths
- ATM
- parking spaces
- trees, bushes and other obstacles
- temporary obstacles
- road maintenance level
- toilets
- rest areas
- perceptional organization of the environment
    - built and natural environment
    - character of the area
    - sound stimuli
    - smells
    - haptic stimuli
    - visual stimuli

- sense of security
- personal comfort
- illumination

In order to facilitate the obstacles' identification, a broad categorization was made:

- The Geometry of the route consists of: the walking surface, "bridging" of different levels, anomalies in the walking surface, obstacles in the "body surrounding area" of the moving person

- The perception of the environment which concerns: obstacles in the visual "screening" and comprehension of the environment (signs, letters, pictograms), complexity, "landmarks", perception stimuli which can cause confusion or facilitate orientation such as: noise, sounds, smells, water drops, texture of the walking surfaces etc.

For the field survey, research area is subdivided into certain zones, in which all surfaces, facilities and equipment are coded. Research staff is responsible to identify all kinds of obstacles for people with disabilities.

During the survey,

- the route number, the obstacle number and observations concerning the characteristics of the obstacles are recorded. Furthermore, actions for the elimination of obstacles are proposed. Picture are taken of each obstacle which are related to the information provided in the table.

- To help with the data presentation, the following colour codes can be used:

    - red: there is no access for people with disabilities (in the observations column note which categories of people with disabilities you are referring to)

    - yellow: the use by people with disabilities can be realized only with assistance

    - green: easy use by all users

The second checklist developed concerns interior spaces of buildings.

The use of the list facilitates the systematic identification and evaluation of the physical condition of buildings in terms of their accessibility for people with different impairments. To do this, detailed building plans are obtained and all spaces are classified according to their identical properties. All spaces are classified and assigned to floor plans. The following categories are specified in order to conduct a systematic analysis of units and facilities:

- Administrative Buildings
- Education Buildings

- Social Buildings
- Mixed Use Buildings

The checklist is composed of nine main sections with main headings as follows:

1. General information
2. Entrances
    - entrances-general,
    - entrances approach,
    - entrances stairs/ramps general,
    - entrances ramps,
    - entrances stairs,
    - entrances doors
3. Circulation (horizontal and vertical movement) with subsections of
    - horizontal movement
        - entrance halls, corridors
    - vertical movement
        - general,
        - elevators and lifts,
        - stairs,
        - ramps
4. Services/Equipment
    - services general,
    - restrooms, toilets, showers,
    - service equipment
        - public phones,
        - water coolers
        - ATMs
5. Emergency cases
    - emergency exits,
    - emergency alarms and alert systems,
    - emergency evacuation
6. Signage
7. Acoustics
8. Lighting
9. Closed spaces with subsections of
    - educational/ academic /employee rooms and halls
        - classrooms, labs, studios
        - offices
    - amphitheaters and conference halls,
    - gastronomic halls (dining halls, cafeterias, cafes)
    - transaction areas (shops, banks, kiosks)

During the application a starting point is identified and all possible routes are followed. Notes and comments are recorded and pictures related to the obstacles are taken.

The third checklist was developed as a tool to assist the evaluation of the educational procedure from the point of view of students with various disabilities. The use of the list facilitates the systematic identification and evaluation of the obstacles which could restrict the ability of students with disabilities to participate in various educational activities.

The list is based on the needs of students with disabilities in the educational procedure; as these are identified in the first deliverable of the ACTUS project “Tasks and needs of students with disabilities in higher education”. It is focused on the educational procedure itself, thus it does not include topics related to physical accessibility, which are covered at the other checklists developed.

Access to educational procedure, consists of teaching materials, lecture organization, programming and equipments. Necessary information about educational procedure can be obtained from University Administration, Disability Coordination Unit and Faculties, in addition to field survey conducted in order to identify corresponding problems.

5. ESTABLISHING AN ACCESSIBILITY STRATEGY FOR THE UNIVERSITY

Universal Accessibility is a key concept in design. Accessibility enables people to participate in the social and economic activities for which the built and pedestrian environment is intended.

Universal Accessibility emphasizes that the population cannot be divided into 'able-bodied' and 'disabled' people, and rejects the traditional practice of designing for the 'average man'. The popular image of disability is the wheelchair user, but many different people experience access problems. In one way or another, whether in height, weight, strength, speed of movement or dexterity, everyone is different. Students, clients, property developers, designers, architects, directors, the university senate, lectures, and managers should be aware of these differences and consequences for accessibility. Universal Accessibility is the integration of these differences into one design philosophy that caters for everyone. Universal Accessibility is an ongoing process that also encompasses the development program, operation and maintenance of buildings and landscapes.

The Universal Accessibility issue is clearly a dynamic one; it has evolved together with evolutions in technology and society. Thus Universities should establish mechanism to steadily follow and to certain extent push technical and social developments. Of primary importance is the establishment of a clear strategy for steadily working towards, improving, maintaining an accessible physical and educational environment for all.

The main elements to be included in such a strategy are explained below.

5.1 Clearly started objectives and policy statement.

Although there are various demands, derived from country's legal framework, these usually do not cover all aspects of the University accessibility issues. A clearly stated policy statement by the University authorities (on high level e.g. Rectorate) concerning accessibility is necessary to express openly their willingness to face seriously relevant issues and bind all next hierarchical levels for any relevant future actions related to:

- Creation of new infrastructure of any type i.e. buildings, open spaces, equipment
- Undertaking of gradual accessibility interventions to existing buildings and open spaces of a high quality
- Establishing and supporting appropriate bodies
- Providing the necessary resources, to the extent possible for establishing accessible educational processes

- Support students with special needs where necessary in their requirements for transport, mobility and unobstructed activities within the University and to the extent possible, within the city they live

The general policy statement should next be further specified in terms of tactical action plans by the relevant bodies, services.

5.2. Establishing appropriate bodies, services and mechanisms

Students' support, particularly the support of students with disabilities, on many aspects is very important. In order to meet such demands, Universities establish appropriate bodies whose structure and status within the University Organization may differ from case to case. It may have the form of a purely volunteers' structure, a University service with formal employees, a mixed form.

It can be an umbrella body with different departments/committees, or independent bodies. The choice of the structure depends on the application environment. It is quite important though that coordination should exist among different departments and that the user with disabilities (student, employee) should be able to have available clear information on where to address questions or demands. Main tasks that such bodies or committees should fulfill are:

5.2.1. Students' psychological support

The fulfillment of such tasks requires personnel with special education and training e.g. psychologists, psychiatrists, sociologists.

The assistance can be provided in a special place (e.g. a Special Center) where students can meet the specialized personnel. In parallel, the establishment of a dedicated telephone line for psychological support is quite useful. The organization of such a call center requires also the employment of specially trained personnel.

5.2.2. Supporting the educational process

Not only should the physical environment of the University but also every component of the educational process be accessible and unobstructed. All needs of students concerning the educational process should be fulfilled by a combination of provision of appropriate technical means, appropriate function and behavior of the teaching personnel, appropriate technical equipment on individual basis i.e. equipment installed in students' room for personal use or in public buildings for use on a collective basis (e.g. Libraries, teaching rooms). In principle, such equipment should be provided for free to the students by the state or by the University as it is a crucial enabling element for an unobstructed educational process. Lecturers should receive appropriate

information on students' with disabilities attending their classroom, special requirements so that to act and behave accordingly, effectively and tactfully. It is also advisable that a students' supervisor is nominated, to whom the student could be addressed and next he/she should be the one to contact his/her colleagues to inform them about the students' special needs.

In the case of deaf students using sign language an appropriate person to assist in translation is required.

Lecturers must be also prepared (and obliged, if necessary) to use alternative forms of exams where necessary and appropriate

5.2.3. Technical Service, accessibility office

Ideally all **existing University infrastructure** should become accessible for all groups of people with disabilities. In practice this is not an easy job. It requires a lot of effort and resources and in certain cases it may not be feasible. In order to convert existing infrastructure to an accessible one, proper planning is required involving: assessment, requirements definition, creation of solutions, and selection of appropriate equipment, application, and evaluation with users.

Concerning **new University infrastructure,** it should be planned from the beginning as an accessible one to all. The question here is how to ensure such an appropriate planning. First of all appropriate and clear study prescriptions concerning accessibility provisions are required. Next, at the study acceptance phase, a special report stating clearly the accessibility provisions which are foreseen, i.e. named as "accessibility statement" should be submitted and examined. The examination of the design study and the accessibility provisions should involve accessibility experts and users.

5.2.4. Promoting voluntary actions in relation to students with disabilities

Students with disabilities require support in many aspects of their daily life within the University and outside it. The support of their co-students can be crucial.

Such support may range from provision of student's notes to reading/recording of notes, books, assistance in exercises, case studies, to activities of daily living etc. University authorities may assist, and even coordinate volunteer organizations in many ways.

5.2.5. Awareness raising

Awareness raising and influence of attitudes of the University Community towards students and employees with disabilities is quite crucial. Many problems can be avoided if the University Community is well aware of the special needs of people with disabilities, with a positive attitude towards them.

Awareness raising can be realized by different forms and means “message” or position texts should be developed and next distributed using different media such as: leaflets, special issues, University, local, national press, posters, radio, TV, Internet.

5.2.6. Information provision on accessibility issues

Certain groups of people with disabilities need to plan their journey before they start it e.g. wheelchair users. In order to plan their journey they need appropriate information on accessibility provisions e.g. doors width, existence of ramps, lifts accessible toilets etc. Such detailed and updated information should be available to students and visitors of the University Campus. It can be in a printed or in electronic form. Contemporary electronic means provide the possibility of storing vast amounts of data and also the use of alternative information presentation forms adapted to “user requirements”.

A challenging issue is to have updated information. Nowadays the tendency is to involve users that they can update the information themselves utilizing the “wiki” concept.

5.2.7. Monitoring progress of the accessibility provision

The existence of central reference point monitoring progress of the accessibility provision process is very important. Such a “monitoring point” could be a “Committee” or referring directly to the Rector or the office of a vice Rector. It should watch process as whole and intervene where appropriate. It is also important produce an annual report where progress could be reported and also main objectives-targets of the next year.

5.2.8. Coordination between city and University on accessibility issues

Not only the University but also the city where a student with disabilities lives in should meet his/her demands,

A dialogue between University authorities and city authorities is important in order to assist in the provision of more friendly urban environment and services to students with disabilities. Such a dialogue may have great positive impacts to wider groups of the local society.

5.2.9. Provision of continuous training on accessibility issues to University employees and staff

There are various staff and employee categories that require appropriate training on disability and accessibility issues general or tailor made e.g. librarians on the use of equipment addressed to blind people. Such training sessions are organized on a regular basis to meet needs of new staff or of changing technology and processes.

Where appropriate, activities and roles, which affect accessibility performances, should be included in job descriptions and user appraisals and lecturers Personal Development Reviews.

5.2.10. Continuous consultation with students with disabilities.

Establishing consultation mechanisms involving students with disabilities working on a permanent basis is of primary importance. Students with disabilities may participate in relevant bodies such as the ones mentioned before and convey their requirements, view to them. Also surveys conducted from time to time may help identifying issues that should be faced.

6. APPENDICES

APPENDIX 1: ACTUS deliverables and their content

In total, eleven (11) deliverables were foreseen and have been produced in ACTUS. All deliverables are available in the project's website. In what follows, the deliverable title together with a brief description of its content are presented.

- **D.1: "Tasks" and "Needs" of people with disabilities in education.**

In the prologue of the deliverable, a brief introduction of the concept of disability, as defined through the World Health Organization's "International Classification of Functioning, Disability and Health" (2001) is made. Furthermore, the notion of accessibility and its particular implications concerning higher education is presented. In the second part of the document, the main "tasks" and "needs" of people with disabilities in higher education are analytically examined and presented. The main tasks students with disabilities do are examined, and divided into various subtasks, the problems students with disabilities face in each task are recognized and the particular requirements they have are presented depending on each disability.

- **D.2: Methodology for the assessment of accessibility offered by academic institutions**

In this deliverable a methodology for the assessment of accessibility offered by academic institutions is presented. The devised methodology is focused on the particular requirements of students in higher education institutions. The deliverable consists of three different checklists, addressing the three major areas which affect a student's academic life. The first checklist concerns open spaces and pedestrian routes, the second accessibility to University buildings and premises and the third the accessibility to the educational procedure itself. Each checklist can be used autonomously in order to facilitate the evaluation of its respective field. It should be noted that each checklist is very analytical so that it can be easily used by personnel without previous experience on accessibility.

- **D.3: Good practice examples concerning accessibility in University Environments**

In this deliverable, good practice examples concerning the accessibility of University environments are presented. The research to identify such good practice examples is focused mainly in Europe, USA and Canada since these areas of the world have shown in as far a particular sensitization on such issues reflected in their legal framework and good practices. This does not preclude that other areas-countries also have good practice examples.

It was chosen to present good practices in relation to main issues-tasks i.e. information, outdoor areas, classrooms etc. In relation to each issue-task several good practice examples are presented which could be utilized by the reader as such or by providing ideas for synthesizing other solutions. It is obvious that Universities present usually good practice examples in specific issues-tasks whereas in others they apply conventional solutions.

- **D.4: Evaluation of the Universities' infrastructure and proposals for improvement**

Partner universities evaluated the accessibility of their universities for students and staffs using the checklist developed in D2. The evaluation covered both the campuses' open spaces and buildings.

The project partners hope that the elaborate documentation of accessibility problems in both campuses will be used to develop proposals for improvement such as immediate priority areas and common problems that present a pattern in accessibility of educational spaces and services.

- **D.5: Seminars/workshops, presentations, CD-ROM Seminars (S1, S2, S3)**

In total 3 Seminars were organized. CD-ROMs with the presentations of the speakers were created and disseminated widely in Turkey and Greece.

- **D.6: Accessibility culture evolution, present situation and prospects concerning policy and practices**

In this deliverable the evolution of the accessibility culture in the wider area of Modern Greek and Turkish state is examined. Four distinct periods (namely ancient Greece, Eastern Roman Empire, Ottoman Empire and Modern Greek and Turkish state) are examined separately due to different religious, social and economic factors of each period. Special Education of both Greece and Turkey is examined in 20th and 21st century, which, being a part of the general accessibility culture, is also influenced by the ideals that dominate each period. Conclusions for accessibility culture and special education were drawn at national level for both Greece and Turkey as well as at the international level.

- **D.7: Accessibility legislation in Greece, Turkey**

In this deliverable legislation in Turkey and Greece relevant to disability and accessibility in the various fields of the movement chain is presented. Furthermore, legislation concerning access of people with disabilities in higher education is also included in this deliverable.

- **D.8: International good practices concerning city accessibility**

In this deliverable international good practices concerning accessibility at a city level are presented. The examples include actions at municipal level from Scandinavian countries, as well as Canada, Brazil and others. The action aspires to provide good paradigms that Mersin and Thessaloniki can follow in order to improve their accessibility level

- **D.9: Accessibility of Mersin and Thessaloniki cities**

In this Deliverable an evaluation of the accessibility offered by Mersin and Thessaloniki Cities from a person's with disabilities point of view is being made. Although ACTUS focuses on the accessibility of University campuses, it was thought as useful to consider the accessibility of the Cities where students live.

Since it was not possible to fully evaluate the partners' respective Cities as a whole, through the actions of the ACTUS project, this deliverable is mainly focused on the assessment of specific points of interest. In Mersin specific characteristic routes were examined, whereas in Thessaloniki a general view of the accessibility of the transport chain was provided. The two cities were evaluated using the methodology and tools developed by "ACTUS".

- **D.10: ACTUS dissemination actions**

The dissemination actions included creation of two leaflets, a Project Poster, four Newsletters organization of International Symposium (I.S) and creation of a CD-ROM with the Symposium proceedings.

- **D.11: Guidebook**

The Guidebook presents some of the project's main actions as well as the appropriate route for creating, in a visible future, an accessible University environment and educational process

APPENDIX 2: Useful Links

- www.dptac.gov.uk Disabled Persons Transport Advisory Committee
- http://www.access-board.gov/ADA-ABA/ American design guidelines
- www.rnib.org.uk Royal National Institute for the Blind of the UK
- www.who.int World Health Organization
- www.dft.gov.uk Department for Transport of UK
- http://www.minenv.gr/1/16/162/16203/g1620300.html Greek Design guidelines
- www.esaea.gr Greek national organization of people with disabilities
- http://www.disabled.gr/lib/?page_id=5772 Non governmental organization of people with disabilities in Greece
- http://spc.web.auth.gr/ Social Policy Committee of Aristotle University of Thessaloniki
- http://access.uoa.gr Access Unit of Kapodistriako University of Athens
- http://e-bility.gr/eutexnos/ Website about assistive technology in Greece
- http://www.amea.gov.gr/central.aspx?sId=95I243I697I646I387621 Website of the Greek government with useful information for people with disabilities
- http://www.accessforall.eu Access For All
- http://www.ada.gov Americans with Disabilities Act
- http://www.un.org/disabilities *United Nations, Rights of Persons with Disabilities*
- http://www.designforalleurope.org Design For All-Europe

APPENDIX 3: Checklist for open spaces, pedestrian routes and methodology for its application

Objectives of the checklist creation

The checklist of open spaces and pedestrian routes was developed as a tool to assist their evaluation from the point of view of user groups with reduced mobility.

The use of the list facilitates the systematic identification and evaluation of the obstacles which could restrict the ability of movement of various categories of pedestrians.

The systematic identification and recording of obstacles concerning their position and nature is a fundamental prerequisite in order to establish proposals for their elimination.

Structure of the checklist

The list includes various groups of “structural elements” of the open spaces and routes which may function as obstacles, such as:

- “bridging” different levels
- surface of sidewalks/walkways
- walking routes
- equipment of sidewalks/walkways and signage
    - footpaths
    - pedestrian crossings
    - controlled pedestrian crossings
    - bus stops
    - stairways
- access to public buildings
- telephone booths
- ATM
- parking spaces
- trees, bushes and other obstacles
- temporary obstacles
- road maintenance level
- toilets
- rest areas
- perceptional organization of the environment
    - built and natural environment
    - character of the area

- sound stimuli
- smells
- haptic stimuli
- visual stimuli
- sense of security
- personal comfort
- lighting

The present checklist is the result of review and synthesis of various existing ones with the addition of original elements

1.1 Methodology for applying the checklist

Preparation of the application

At the stage of preparing the checklist's application, the following are required:

- Careful study and comprehension of the checklist
- Supply of study area maps in small and large scale (1:5000, 1:500, 1:200- floor plans of buildings). If such maps are not available or not appropriate, sketches should be drawn.
- Preparation of a data recording form which will include the following data
  - Name, surname of the auditor
  - Date, Time, Weather conditions
  - Table as follows:

Route No.	Obstacle No.	Observations	Proposed actions

  - In the first column the route number is recorded, in the second the obstacle number and whether this is located near a characteristic point. In the third column observations concerning the characteristics of the obstacles are recorded and, finally, in the last column actions for the elimination of obstacles are proposed.
- Supply of a common pencil as well as three coloured ones, red, yellow and green (or appropriate highlighting markers)
- Walk through the study area in order to acquire a first picture of it
- Identify a starting point and seek obstacles on the walking route. Give a number to the route as well as to the obstacles met in the table and also note them on the map (sketch). If a problem exists in a big part of the route, colour the area appropriately
- The following colour codes can be used:

- red: there is no access for people with disabilities (in the observations column note which categories of people with disabilities you are referring to)
- yellow: the use by people with disabilities can be realized only with assistance
- green: easy use by all users

- Take pictures of the obstacles. Make sure that you will be able to relate the photos taken with the numbers in the table, keep relevant notes in the table
- Include observations which you believe will improve the quality of the findings.
- In order to facilitate the obstacles' identification, bear in mind their broad categorization as follows:
  - Geometry of the route which consists of: the walking surface, "bridging" of different levels, anomalies in the walking surface, obstacles in the "body surrounding area" of the moving person
  - Perception of the environment which concerns: obstacles in the visual "screening" and comprehension of the environment (signs, letters, pictograms), complexity, "landmarks", perception stimuli which can cause confusion or facilitate orientation such as: noise, sounds, smells, water drops, texture of the walking surfaces etc.
- In examining every "structural element" of the movement route the auditor can refer to the specific paragraph of the present checklist and examine to what extent the specific demand are met. The results of the examination are noted in the column observations.

1.2 Bridging different levels between sidewalk/walkway and road surface
General

	YES	NO	NOTES
Is there a height difference along the route which is bridged with a ramp – dropped kerb? If yes, please mark it on the map.			
Continuity (does a ramp / dropped kerb exist at the opposite side of the road?			
In case there is a “safety island” on the road do they exist ramps/dropped kerbs on it ?			
Do safety island’s ramps/dropped kerbs correspond to those of the road/sidewalks?			
Visibility (can a pedestrian easily see the opposite side of the road?)			
Placement (Are ramps / dropped kerbs located where the pedestrians “naturally” want to cross the road?			
Do obstacles exist that restrict the ramp’s width?			
Is the ramp usually occupied by parked vehicles?			
Is the ramp’s surface slip-resistant, stable and easily maintained?			
In case of rain, is there proper drainage of water?			

Geometry

	MEASUREMENTS		
Ramp width (at least 1,5m, more necessary particularly in case of pedestrian traffic. Dropping the whole corner at street corners is recommended.)			
Ramp slope			
	YES	NO	NOTES
Is the slope appropriate? (5% recommended, 1/12 maximum. This question can be answered after field study, at evaluation stage			
Can a wheelchair user use the ramp autonomously?			
Is there special care taken so that there is no height difference where the end of the ramp and the road surface are joined?			

Signage

	YES	NO	COMMENTS
Is the beginning and the end of the ramp marked by tactile indicators signifying “Danger”?			

1.3 Bridging different levels with ramps (between the sidewalks/walkways and the level of other land uses, e.g. buildings)

General

	YES	NO	NOTES
Is there a height difference which is bridged with a ramp? If yes, please mark it on the map.			
Is there an option with stairs, facilitating people with specific disabilities (e.g. with restricted vision)?			
If a permanent ramp cannot be constructed, are other alternatives available (portable ramp, platform lift, stair lift etc.) This question can be answered after field study, at evaluation stage			
Is the entrance ramp (if that is the case) reaching inside of the building or is it constructed outside of it?			
Where exactly does the entrance ramp end? (e.g. in a covered area extending from the main entrance) Ramp dimensions can be shown on the map.			

Geometry

	MEASUREMENT		
Ramp length			
Ramp height			
Ramp slope			
	NOTES		
In which way are the ramp's sides protected? (solid kerbs, railing etc)			
	YES	NO	NOTES
Does the ramp have landings at its beginning and end?			
If there is no landing at the end of the ramp, is there enough space available for the opening of a door (if a door exists) Please measure space available space at the end of ramp			
	YES	NO	NOTES
Does the ramp have a landing in the middle due to increased length (for ramps more than 10m long), change of slope or direction?			
	MEASUREMENT		
Dimensions of landings (particularly in case of direction change)			
	YES	NO	NOTES
Are there appropriate landings in each direction change? (this question can be answered at the evaluation stage)			

Handrails

	YES	NO	NOTES
In case the ramp's width exceeds 3,0m., is there a continuous handrail in the middle?			
Does the ramp have handrails in both sides?			
Is there a double handrail in both sides?			
In which height is the upper level of the used handrails (recommended 70 and 90 cm.) Measure the height of handrails			
What is the shape of the handrails' cross-section?			
	YES	NO	NOTES
Does it facilitate their use?			
Do the handrails have enough colour-contrast with the environment? Please take photos (photos can be used at the evaluation stage)			
Material used for the construction of the handrails (is it cols, slippery, difficult to grip)			

Surface/ Signage

	YES	NO	NOTES
Is the ramp's surface slip-resistant,			
Is the ramp's surface stable,			
Is the ramp's surface easy to maintain?			
Are the landings marked with colour-contrast?			
Are there the appropriate yellow Tactile Surface Indicators marking "Danger" at the beginning and the end of the ramp?			

1.4 Sidewalks

General

Are there sidewalks? (pay attention to cases where sidewalks do not exist although they are required) Sidewalks are shown on the map (please list the sidewalks code)			
In case construction works take place within the free zone for the movement of pedestrians, is there a new free zone for the movement of pedestrians created, with a width of at least 1,2m, with appropriate signage, that secures safe movement of all sidewalks users? (measure the width of the new free zone)			
	YES	NO	NOTES
Do the accessible sidewalks create “networks” so that easy movement of pedestrians is not interrupted? (an appropriate sidewalks network can be determined at the evaluation stage, with reference to the corresponding maps)			

Walking surface

	YES	NO	NOTES
Are there anomalies which can cause vibrations to wheelchair users?			
If yes, what kind of anomalies (surface, pavement problems)?			
Is the surface continuous? (check for cracks, bad joints, additions, broken or damaged surfaces)			
Are there depressions which might concentrate water?			
If yes, please mark it on the map			
Are there slippery surfaces?			
If yes, please mark it on the map			
Are the grids or other obstacles at the same level with the movement surface? (do they create obstacles (e.g. grids with wide gaps)			
If there are any obstacles, please mark it on the map			
Does the surface have many joints?			
If yes, which time of material is used for the pavement?			
Are there any problems where different surfaces meet? (e.g. height differencies, etc)			
If yes, please mark it on the map			
In case grids are placed, are the gaps created more than 1 cm. wide?			
If yes, please mark it on the map			

Geometry

Pavement/sidewalk width: minimum width 2,05m – preferably 2m free of obstacles. In case of existing townplans the following are proposed concerning the sidewalks’ minimum width:

-for roads more than 12m wide, minimum 2,05m sidewalk width

-for roads 9-12m wide, compulsory 2,05m sidewalk width

-for roads 6-9m wide, minimum 1,5m sidewalk width (the same as the free zone for movement of pedestrians). 2,05m recommended sidewalk width, if possible

-for roads less than 6m wide, the creation of a sidewalk is recommended

-Minimum width free of obstacles along the sidewalk: 1,5m (width of a double baby pram 1m, wheelchair width 70cm. alone, 90cm. including the user’s hands, width of an electric wheelchair 1,0m.)

	YES	NO	NOTES
Is the sidewalk of a sufficient width to accommodate pedestrians during the peak hour (near places where pedestrians are gathered, such as cinemas, theatres etc.)			
Please, mesure sidewalk width			
Pay attention to the slope. (Both along the route and vertically. Is the cross-section slope more than 4% “pushing” wheelchair users to the carriageway? -desirable slope 1-1,5%) It may not be possible to measure sidewalk slope, taking photos, and measuring on the map may be better			
In case the sidewalk width is only 1,5m or less, is there a widening of 2m every 50m?			
If yes, mark it on the map.			
Please measure kerb height of the pavement/sidewalk			
Are there rest areas 0,8m*1,3m available every 100m in central areas and every 200m in more distant ones.			
If yes, mark it on the map.			
In case of streets dominated by shops, is there a free standing zone of 1,2m width in front of the shops.			
If yes, mark it on the map.			

Obstacles

	YES	NO	NOTES
Are there obstacles used prohibiting the sidewalk’s occupation by vehicles (eg. Small pillars)			
What is their shape and height?			
Are they rigid?			
Is their shape and material such that could cause serious injury on someone who falls on them (e.g. cyclist, motorcyclist, pedestrian).			
Are there special provisions for “forgiving infrastructure”?			
Do the obstacles create enough colour contrast with the environment? (please take photos)			
Is the pavement occupied by shop’s and cafe’s chairs and tables?			
If there are there Π shaped protecting barriers, do they have a height of at least 75cm, rounded corners and a horizontal bar 10cm. from the ground in order to facilitate their identification from people with sight problems who use canes?			
Please measure the height of protecting barriers			
Is the sidewalk free of obstacles (tree branches, signs) for a height of 2,2m along the length and width of the free pedestrian movement zone?			
Do trees or bushes restrict the width of the free movement zone or visibility?			
If yes, mark it on the map.			
The width of the plants zone is additional to the free movement pedestrian zone?			

Temporary obstacles
Note the temporary obstacles, e.g. cars and motorcycles parked on the pavement, gardens which extent to the pavement, cars with two wheels on the pavement, movable advertising signs of shops

	YES	NO	NOTES
Are there stands or shop products (e.g. furniture) on the sidewalk?			
Mark the temporary obstacles, if they are necessary to exist, should be marked with a certain continuous railing, painted usually with two sharp colours, lighted during the night, so that they will always be visible.			

Street maintenance level

	YES	NO	NOTES
Are there materials (e.g. from trimmed plants) or objects (e.g. garbage) which make the use of the surface by pedestrians and wheelchair users dangerous or difficult?			
If yes, mark it on the map.			
Is there garbage which has obviously remained in the same place for a long time?			
Are there wastes on the sidewalk from pets?			
Are there stale waters on the sidewalk due to insufficient drainage?			
Are there signs of inadequate cleaning of roads from leaves, snow, ice etc?			

Perception

	YES	NO	NOTES
Are there obstacles which cannot be identified by people with visual impairments who use a cane?			
Is there adequate lighting? (please take photos)			

Walkways– pedestrian zones

	YES	NO	NOTES
Please measure the width of the pedestrian movement zone			
Is the width of the free pedestrian movement zone 3,00m at least, so that, besides the unrestricted move of pedestrians, the pavement can be used by emergency and goods supplying vehicles (this question can be answered at the evaluation stage)			
Please measure the width stop zone in addition to pedestrian movement zone			
In areas where the prevailing use, by planning, is the commercial one, a free zone of 1,2m width is required in order to create a stop zone in front of the shops' windows (zone of visual trade) in addition to the free pedestrian movement zone. (this question can be answered at the evaluation stage)			
Are there rest areas 0,8m*1,3m available every 100m in central areas and every 200m in more distant ones. (this question can be answered at the evaluation stage)			
If there are any rest areas please measure its dimensions			

Check for excessive use of street furniture (if yes please take photos)			
Is the equipment's design of a high quality? (please take photos)			
Is there a clear route through the street furniture of a minimum width of 0,90m? (please take photos)			
Is there proper tactile signage guiding people with visual impairments? (please take photos)			
Is it obvious where the footpath ends? (particularly for parents and persons with visual impairments) (please take photos)			
Are there seats available so that pedestrians can rest for a while?			
Is the seat "friendly" to the user (upright position, comfortable surface, separate arms)			
Is there a Tactile Surface Indicator (TSI) implemented?			
If yes, is it appropriately placed? (In most cases, due to the extended width of footways, the implementation of TSIs is necessary)			
Do the TSIs form networks or they are abruptly terminated? (please take photos)			
Are the appropriate tiles used for the formation of the TSIs according to national guidelines? (please take photos)			
Although it is not allowed, do grids and other obstacles exist on the TSI? (please mark it on the map and, take photos)			
Is the TSI at a distance of at least 0,5m from the street plan line but in such a distance that the user can follow it? Please measure TSI distance from the street plan line			

1.5 Street furniture, equipment and signage

Street furniture, equipment
The equipment should be gathered together in the external part of the pavement/sidewalk, in a width of 1,3m.

	YES	NO	NOTES
Are the street furniture and signage really required? (Check for repetitions)			
Does the street furniture create obstacles or interrupt the smooth movement of pedestrians? (if yes, please take photos)			
Is street furniture in good working conditions? (Is it proper?)			
(if not, state the problem)			
Does the street furniture create obstacles to people with visual impairments? (if yes, please take photos)			
Can all the equipment be used by people with disabilities? (if yes, please take photos)			
Is there “standardization” of the equipment? (please take photos)			
Are all street furniture “projected” to the ground in order to be identified by people with visual impairments using a cane? (please take photos)			

Telephone booths

If there are any telephone boots please mark it on the map, and take photos,	YES	NO	NOTES
Are they accessible to wheelchair users?			
Please measure available space in front of			
Is there enough space available for wheelchair users’ feet? (this question can be answered at the evaluation stage)			
If there is provision for wheelchair user please mark it on the map, and take photos			
Is there provision for a wheelchair user or for a user with short height? (this question can be answered at the evaluation stage)			
Can the visual messages displayed be read by wheelchair users, or are they placed too high?			
Is this information available in audible format as well?			
Is there an induction loop available for people using hearing aids?			
Are there public textphones available in the area?			
Can the volume be adjusted?			
Are the button’s used in Braille?			
(please measure the height of tel.booth) Are they placed in at a height less than 1,2m from the ground?			

ATMs

	YES	NO	NOTES
Are they accessible to wheelchair users?			
Please measure available space in front of the ATM.			
Is there enough space available for wheelchair users' feet? (this question can be answered at the evaluation stage)			
Is there a level surface of at least 1.3*1.3m in front of the machine?			
Can the visual messages displayed be read by wheelchair users, or are they placed too high?			
Is this information available in audible format as well?			
Is there a strong colour contrast between letters and background on the display?			
Are the button's used in Braille?			
(Please measure the height of the ATM)			
Are they placed in at a height less than 1,2m from the ground? (particularly concerning the card receiver)			
Does it exist telephone support connected to the ATM?			

Signage
General

	YES	NO	NOTES
If there is any signage, please mark it on the map, and take a photo.			
Is signage easy to understand, or it creates confusion?			
Is proper signage provided to both pedestrians and drivers?			
Are signs located where they are necessary, or do they confirm the obvious?			
Is the pedestrian continuously guided by appropriate signs?			
Are there gaps in continuality?			
Are there signs available guiding the pedestrian to the city's "points of interest"?			

Geometry

	YES	NO	NOTES
Is signage clear, well designed and readable (easily understood by many users)?			
Are pictograms used?			
Is lower case lettering used?			
Please measure the dimensions of the signage, and take a photo.			
Do the characters used have the appropriate size (if they are read from a long distance, e.g. buildings' entrances, 15cm, from average distance, eg. Instructions in corridors, 5-10cm, from small distance, eg. Signs on the wall, 1,5-2,5cm.)			
Do the symbols have the appropriate size? (depending on reading distance -4cm. for 3-6m. distance, 6cm. for 6-9m. distance, 8cm for 9-12m. distance, 10cm. for 12-15m. distance)			
Is there sufficient colour contrast between letters, symbols, pictograms and background?			
Are there tactile letters, numbers etc. or Brailee signage used for people with sight problems (if you think they are required)			

Is signage located at a height which facilitates its use by all? (all signage should be located outside the “free movement zone”. If it is placed on walls it should be located at a height between 1.4 – 1.6m)			
If there is any map, please mark it on the map, take a photo.			
Are maps provided?			
Are they available in tactile form?			
How is signage placed? (Is placement on poles absolutely necessary – could signs and lamps be placed on buildings?)			
Is there a Tactile Surface Indicator implemented?			
Is it appropriately placed? (if necessary)			
Do the TSIs form networks or they are abruptly terminated?			
Are the appropriate tiles used for the formation of the TSIs according to national guidelines?			
Although it is not allowed, do grids and other obstacles exist on the TSI?			
Is the TSI at a distance of at least 0,5m from the street plan line but in such a distance that the user can follow it?			

1.6 Road Crossings
General

	YES	NO	NOTES
If there is any road crossing, please mark it on the map, ~~and~~ take a photo, and measure its dimensions.			
Is there a safe place for a pedestrian to cross the road, where it is needed and justified by pedestrian traffic (e.g. controlled crossing)			
Is the crossing placed at a reasonable location (where the pedestrian "naturally" wants to cross the road)			
Are crossings available every 100m? (this question can be answered at the evaluation stage)			
Is the crossing "occupied" by vehicles during the green light for the pedestrians?			
Is the traffic light for vehicles placed in a way that "forces" drivers to do so?			

Geometry

	YES	NO	NOTES
Is the crossings width at least 2,5m?			
Is the sidewalk's kerb dropped at the whole crossing? Is there bridging of height difference with the road surface on both sides?			
Are the crossings perpendicular to the traffic flow?			
Are the drainage grids placed outside the pedestrian movement zone?			
If yes, do the drainage grids create an obstacle on the road surface higher than 2cm?			
For roads more than 12m wide, are there "islands" at least 1,5m wide created?			
In case there is a "safety island" on the road do they exist ramps/dropped kerbs on it ?			
Do safety island's ramps/dropped kerbs correspond to those of the road/sidewalks?			

Signage

	YES	NO	NOTES
Do the crossings have markings on the road surface which imply the pedestrians' priority (a STOP sign on the road surface at least 1 m. before the crossing)			
Is there tactile signage for people with sight problems? Has it been appropriately implemented? Are there "DANGER" markings place at the beginning and the end of the crossing?			

Controlled crossings

General

	YES	NO	NOTES
If there is any controlled crossing, please mark it on the map, take a photo. There is no controlled crossing, although this is justified by pedestrian traffic?			
Can the pedestrian easily see the signal box?			

Geometry - Characteristics

	YES	NO	NOTES
Please cross to the opposite side slowly, and measure crossing time What is the “green walking man figure” time? (It is determined by the quotient of the road surface width over the mean walking velocity of 1,35m/sec)			
Is there a large traffic of elderly pedestrians and people with disabilities which would justify a longer “green walking man figure” time at the particular crossing?			
During the “green walking man figure” time, is the road surface exclusively used by pedestrians, or there is simultaneously moving car traffic?			
Is the crossing activated by the pedestrian?			
Is there a control button used?			
If yes, in what height is it located (should be between 0,9 and 1,2m)			
Is the post on which it is located clearly marked?			
Is it facing the correct direction?			
Does the crossing have a system that recognizes the presence of pedestrians?			

Signage

	YES	NO	NOTES
Does the audible signal annoy people working – living around the crossing (ask them)			
Is there a tactile indicator (e.g. a rotating knurled cone) complementing the audible signal?			
Is there an acoustic signal which assists pedestrians with visual impairments? Does it work continuously or is it user activated?			

1.7 Bus Stops
General

	YES	NO	NOTES
If there is any bus stop, please mark it on the map, and take a photo			
Are there bus stops properly designed to be used by people with disabilities?			
Is the distance between two consecutive bus stops less than 400m.? (200m. are preferable for bus line with frequent use by elderly passengers or people with disabilities) (at the evaluation stage, the distance can be measured on the map)			
Where is usually located the bus stop at the study area? (on the sidewalk/walkway, on a widening of the siadewalk/walkway etc.)			

Geometry

	YES	NO	NOTES
Is the bus stop sheltered?			
If yes, is the shelter fully covered or only with one end panel?			
Is the shelter's width at least 1,4 m;			
Does a seat exist for waiting passengers?			
Is the seat user-friendly? (up-right, separate arms, colour contrasted)			
Is there enough space next to the seat to accommodate wheelchair users (the wheelchair space has to be sheltered too)?			
Are the vertical panels of the shelter constructed using safety glass or any transparent panels that don't hinder visibility?			
Is there a corridor (if yes, measure its width) at least 1.3m wide in front of the bus stop?			
Is there an unobstructed boarding area (if yes measure its dimensions) at the stop 2,0m *2,0m?			
Is there an obstacle free walkway of 2m. provided despite the presence of the bus stop is (1,5m is acceptable with 1m the absolute minimum)			
Is a raised bus boarding area provided in order to keep transition gradients to acceptable levels? (1 in 20 preferably, 1 in 12 maximum)			
What is the kerb height? (A kerb height of 16cm. can give a good compromise between ease of access and reduced damage to the bus, depending on the bus type)			
Can the bus approach the sidewalk in order for it to be almost adjacent to the kerb?			
Is the gap between the bus and the kerb more than 3 cm?			

Signage

	YES	NO	NOTES
Are there maps, information tables (giving info about arrival times, bus lines etc) located at an appropriate height (1,4 – 1,6m)			
Is the text provided the appropriate size? (please take a photo)			
Is the text orientated in order to assist pedestrians?			
Are there VMS signs? Which info do they provide? Are they placed at a proper height? (please measure its height)			
Is there audible info provided? (mostly for people with sight problems)			
Is there tactile info (in Braille) provided?			
If a TGSI is implemented near the bus stop, does it have the appropriate “Service” tile marking the bus stop?			
Do glass or transparent panels have coloured bands at least 15cm wide at a height of 1.4 – 1.6m from the ground? (if there is any glass panel, please take a photo)			
Is the bus stop easily identifiable by people with visual impairments?			

1.8 Stairs

General

	YES	NO	NOTES
If there are any stairs please mark them on the map, and take a photo			
Is there an alternative route apart from the staircase provided through a lift or ramp?			
Is there enough lighting provided?			
Is there a provision for bridging small height differences (about 5 cm.) in the same horizontal level?			
Is the back of the staircase covered so that it does not impose a danger to people with visual impairments?			

Geometry

	YES	NO	NOTES
Do the steps have rounded noses?			
The staircase should not be open tread			
Stair width? (minimum clear width preferred 1m, preferably 1,2m)			
Height of riser? (13 – 15cm preferred, 17cm max)			
Tread depth? (30 cm preferred, 25cm. Minimum)			
Do all treads have the same depth?			
Are the treads slip resistant?			
If not, do treads have slip resistant materials at their edge?			
Is the number of risers in each flight less than 12?			

Handrails

	YES	NO	NOTES
If there is an handrail, please note it and take a photo			
If yes, do they exist at both sides?			
Material used (is it cold, slippery, difficult to grip?)			
Do the handrails have a cross-section which facilitates their use?			
What is the diameter of the handrail? (preferred 45 – 50mm of circular cross section)			
Do the handrails continue beyond the end of the stairs by a 30cm minimum?			
Please measure the dimensions of the handrail			
Are double handrails at 70 and 90 cm. provided?			
Are there handrails provided at landings?			
Do handrails provide enough colour contrast with the environment?			

Signage

	YES	NO	NOTES
Is there enough colour contrast provided between tread and height?			
Are there tactile warning surfaces at the foot and head of stairs (tiles marking “Danger”)			
Are the steps’ edges marked with colour contrasting material			
Is the number of stairs provided in Braille at the foot and head of the staircase?			

1.9 Access to public buildings

This part is included under the topic PART 2: BUILDINGS, the following questions may be integrated to the corresponding part.

General

	YES	NO	NOTES
Is there a public building along the route? (all buildings shall be noted on the map, if there is any public building along the route, please show on the map, and take a photo)			
How many entrances does the building have? (this question is related to PART 2: BUILDINGS, entrances)			
How many of these are used by the general public?			
Is the main entrance clearly identified?			
If the main entrance is not accessible, is there an accessible secondary entrance which can be used by the general public?			
Is it always in use, or is it usually locked?			
Is it clearly identified? Does it exist signage guiding frm main entrance to the accessible one?			
Does the main entrance have sufficient lighting?			

Geometry

Following questions must be answered also for the accessible entrance if main entrance is not accessible.	YES	NO	NOTES
Is the main entrance's door swinging, revolving or sliding? (automatic sliding doors are recommended)			
Is it manually operated or automatic? Are automatic doors triggered by a sensing device or a push button?			
If manual doors are used, can they be operated with minimal effort?			
Is it opening to the outside or to the inside?			
Is there an alternative to revolving doors?			
Are there steps before the main entrance? Is there an alternative one without steps, or with a ramp, lift or platform lift?			
Is the main entrance sheltered?			
Which material is used for the main entrance (metal, wood, glass etc.)			
Is there a vestibule? Which are its dimensions? How are its doors opening (swinging, sliding)? Are they swinging inwards or outwards? In the same direction?			
What is the clear width of the door? (recommended 1,20m, minimum 90cm)			
Is there a clear level space of 0,50m next to the door (for swinging doors) and 1,50m before and after the door to facilitate maneuvering for wheelchair users?			

Obstacles

	YES	NO	NOTES
Are there obstacles created by stairs, narrow doors etc.?			

Is there a doormat hindering easy entrance?			
Are all thresholds level (less than 1cm high)			

Equipment
(All the door's equipment should be placed 0,90 – 1,20m high)

	YES	NO	NOTES
Can the door's equipment be easily used by people with mobility impairments?			
What is the height of the door handle?			
What is the shape of the door handle?			
Can the door handle be operated with a closed fist?			
Do automatically closing doors remain open for sufficient time to allow a slowly moving person to use them? Is there a way the doors can remain open?			
In case of automatic swinging doors, do they open towards the user (can prove to be dangerous)			
Can people from each door side, sitting or standing, see each other?			
If a door opening button is used, is it clearly indicated and appropriately placed?			
Can door phones and security systems be used by people with sensory and mobility impairments?			

Signage

	YES	NO	NOTES
If the doors are made of translucent material, do they have contrasting colour banding at eye level and between 80cm – 1,0m above floor level?			
If the main door is not accessible, is the secondary accessible door appropriately signed?			
Do the doors create enough colour contrast with the surroundings?			
Do security systems of automatic doors (if they exist) have audible and visual warnings when they are activated?			
Do automatic swinging doors have audible and visual warnings when they are activated?			

1.10 Parking spaces

General

	YES	NO	NOTES
If there is any parking space, please draw on the map, and take a photo			
Parking capacity (number of cars)			
Are there parking spaces reserved specifically for drivers and passengers with disabilities?			
If yes, how many parking spaces are reerved for them			
Are these parking spaces on accessible routes and as close to accessible entrances of the served facilities as possible? (please measure the distance between parking space and the served facilities, this question can also be answered by measuring distances on the maps, at the evaluation stage)			
Does the parking spaces user have a sense of security (good lighting etc.)			
Are 5% of all parking spaces reserved for people with disabilities?			
Are parking spaces reserved for people with disabilities safeguarded?			
Is there the possibility of reserving a parking space? (over the telephone, by email etc.)			

Geometry

	YES	NO	NOTES
Please measure the dimensions of parking spaces reserved for vehicles of people			
Do the 7/8ths of parking spaces reserved for vehicles of people with disabilities have dimensions (3,5X5,0m)? (sufficient for most vehicles – the length extents to 6,0m for spaces adjacent to the sidewalk)			
Is $1/8^{th}$ of all parking spaces reserved for people with disabilities appropriate for Van type vehicles (4,5X6,6m)?			
Can vehicle doors be fully opened within the designated space in order to allow drivers and passengers with disabilities to be transferred to an adjacent wheelchair, if this is required?			
Is there enough space provided for drivers to access the vehicle from the rear door (depending on the vehicle)			
Is there enough free height provided (2,6m. – some disabled motorists use vans or high-top cars, while others have wheelchairs stowed on top of their vehicles)			
Type of surface used (loose gravel surfaces can cause problems to wheelchair users)			
Are there free movement routes created?			
Are all height differences appropriately bridged, or are the routes interrupted by stairs and kerbs?			
Is there a free moving zone,			
If yes please measure its width (it should be at least 90cm wide available)			
Is there a height difference between the parking space and the sidewalk?			

If yes, is it appropriately bridged?			
Is there any ticket dispencer?			
If yes, please measure its height, are ticket dispensers, slots for cards etc. placed between 90cm and 1,2m high?			

Signage

	YES	NO	NOTES
Are the parking spaces reserved for people with disabilities and parents clearly indicated? (appropriate signing on the ground and on a pole using the International Symbol of Access)			
Are the designated parking spaces easily identified from the entrance of the car park?			
Is there a sign indicating the allowed vehicles' maximum height available?			
Are there Tactile Surface Indicators implemented, where necessary?			

1.11 Public lavatories

General

	YES	NO	NOTES
Are there enough public lavatories in the area?			
If yes, please mark it on the map, and take a photo			
Is there a change –table for babies available in the toilet?			
Is there an accessible public lavatory available?			
Is the accessible lavatory gender-neutral?			
If the accessible lavatory is locked, who has the keys and how is he notified?			
Does the toilet have sufficient lighting?			
Are the lavatories clean and appropriately maintained?			

Geometry

	YES	NO	NOTES
Do hallways exist in the lavatories?			
If yes, please measure its dimensions?			
Please measure the clear size of the toilet cubicle			
Are there different levels?			
If yes, how are height differences bridged?			
What is the door's clear width			
How is the door operated (doorhandle, automatic door etc.)			
Is there any swinging door,			
If yes, is significant force required to open it? (is it easily opened?)			
Are there both left-handed and right-handed transfer layouts provided?			
If there is a swinging door, does it open to the outside of the toilet?			
If there is, please measure the height of door handle from ground level			
Can the door be operated by a user with a closed fist?			
Is significant force required to operate the door? (is it easily opened?)			
In case of emergency, can the door be also opened from the outside, although locked from the inside?			
Please measure the radius of the available space, where a wheelchair user can rotate without obstacles (a minimum of 1.5m is required)			
Is there a need to also provide a shower?			
Does the floor ensure proper drainage of water?			

Equipment

	YES	NO	NOTES
Is the toilet equipped with appropriate handrails?			
Height of handrails from ground level.			
Length of handrails.			
Height of the WC			
Distance of the WC from the walls to the left and to the right.			
Is this area free from obstacles?			
Free height under the basin.			
Do waste pipes under the basin prohibit easy use by a wheelchair user?			
Is the basin of “anatomical” shape?			
What material is used for the floor surface?			
Does the basin have a lever-operated mixer tap?			
What is the height of soap dispenser from the ground.			
Is it easy to use?			
Is it within reach of a person seated on the lavatory?			
What is the height of the mirror from the ground?			
Can a seated person easily use it or it should be inclined?			
Is the cistern automatic.			
Does it form an anatomic “back” for the user?			
Are there shelves provided? (a changing shelf to the side of the WC at a height of 95cm, a lower shelf at 70cm above floor level by the wash basin)			
Is there a system providing toilet paper by sheet, helping users with only one hand?			
Is there an alarm system in case of emergency which contains a cordon placed around the room, parallel to the ground, so that it can easily be used?			

Signage

	YES	NO	NOTES
Is there signage provided with Braille – International Symbol of Access?			
Is there enough colour contrast provided between the equipment and the walls?			

1.12 Perceptual organization of the environment

Built and natural environment

	COMMENTS
What is the quality of the prevailing architecture along the road?	
Does the area have mostly contemporary or historical buildings?	
Comment on their quality.	
Note their position on the map.	
Are there apparent aesthetic problems in the area (buildings which do not match to the area, empty spaces, fences, temporary fences of buildings, abandoned buildings.	
What is the “feeling” of the area’s environment? Satisfactory or not? Are there any points of interest in the area? Is there lack of colour or interest? Do interesting activities happen in the area? Are there any gaps in the facades interrupting continuity?	
What are the “decorative” elements of the area (flowers, pieces of art, sculptures, fountains etc)? Are they appropriate for the city’s character?	

Character of the area

	COMMENTS
Does the area have a special character?	
How would you describe it?	
What makes it special?	

Sound stimuli

What kind of sounds prevail in the area? E.g. a central artery’s passing by noise, bird sounds in a park, luna park sounds, children’s voices from a schoolyard etc	NOTES		
Are these sounds “permanent” or “temporary”?			
When they are usually heard?			
	YES	NO	NOTES
Can these sounds be used for orientation purposes? (particularly for blind people?)			

Smells

	NOTES		
Are there prevailing smells in the area? E.g. from flowers, trees, bushes, area activities (bake – shop, pastry shop, steakhouse etc)			
Are these smells “permanent” or “temporary”? When do they usually occur?			
	YES	NO	NOTES
Can these smells be used for orientation purposes? (particularly for people with sight problems)			

Haptic stimuli

	NOTES		
What “feeling” does the touch of feet with the ground create?			
	YES	NO	NOTES
Is the ground texture special?			
Can the particular ground surface be used for orientation purposes? (especially for blind people			
Is there tactile signage for guiding blind people available in the area?			
Are there Braille signs available?			

Visual stimuli

	YES	NO	NOTES
Is the area “easily readable”, do landmarks exist facilitating orientation?			
Are there visual stimuli which cause particular impression and are kapt in memory (particularly painted surfaces, prevailing colour of the area, prevailing forms?			
Is information provided by visual means e.g. variable message signs facilitating people with hearing impairments in particular?			

Permeability

	YES	NO	NOTES
Are the roads permeable?			
Can you follow a direct route to your destination?			
Are there many dead ends?			
Id dead ends exist, do they have appropriate signage?			

Sense of security

	COMMENTS		
Is the area safe or dangerous?			
Why does it seem dangerous?			
	YES	NO	NOTES
Are there areas on route which seem dangerous? If yes, please mark them on the map, an take photos			
Are there areas where it’s “prohibited” to go close to them? If yes, please mark them on the map, an take photos			
Would you feel secure there at night?			
Are there fences, empty spaces, and abandoned areas? Are there areas when an ambush danger exists?			
Are there accident prone areas due to traffic (cars running very close to pedestrians, dangerous turn etc)?			
Would a person with a young child feel safe?			

Personal comfort

	COMMENTS		
What is the level of personal comfort?			
Is it cold, windy, is the pedestrian exposed to the elements?			
	YES	NO	NOTES
Is there excessive noise, bad smells, pollution, other dangers for one’s health?			

Lighting

	YES	NO	NOTES
Although this is difficult to identify during the day, is there enough lighting provided (check the presence of street lamps)			

2. ACCESS – ENTRANCE

2.1 Parking spaces, embarkation, disembarkation			
2.1.1 How many parking places exist for exclusive use by the public?			
2.1.2 How many parking spaces exist in the building's basement for exclusive use by the public?			
2.1.3 How many parking places exist for exclusive use by the building's personnel?			
2.1.4 How many parking places exist for exclusive use by people with disabilities?			
2.1.4 How is the vertical movement between the basement and the areas serving the public realized?			
2.1.6 Is the minimum net height of the parking space for people with disabilities 2,4m? (please measure the net height)	Yes	No	
2.1.7 Are accessible parking spaces marked with the International Symbol of Access?	Yes	No	
2.1.8 Is there a ramp bridging the height difference between the parking space and the sidewalks/walkway?	Yes	No	
2.1.9 If a ramp bridging the height difference between the parking space and the sidewalk/walkway exists, what is its slope, width, length, construction material, maintenance status. (please take photos)			
2.1.10 Is the route from the parking space to the building's entrance level, without stairs or other obstacles (eg footway's kerb (please take photos)	Yes	No	
2.1.12 Are the sidewalks/walkways along the usual route to the building's entrance equipped with ramps? (height difference, length, width, construction material, maintenance status) (please take photos)	Yes	No	
2.1.13 Is there a "tactile surface indicator" on the route from the parking space to the building's entrance (special tiles for guiding people with visual impairments)? (please take photos)	Yes	No	
2.1.14 If a TSI has been implemented, have bad practices and poor workmanship created complaints by other users? (please take photos)	Yes	No	
2.1.15 What is the distance of the parking space reserved for people with disabilities from the building's entrance? (can be measured on the map)			
2.1.16 What are the dimensions of the parking space reserved for people with disabilities?			
2.1.17 Are there parking spaces designed particularly for van use?	Yes	No	
If not, is there space available for creating them?	Yes	No	
2.1.18 Is there both visual and audible communication available?	Yes	No	
2.1.19 Are the usual routes to the building safe and well lightened? (please take photos)	Yes	No	
2.1.20 Is there a procedure that guarantees that the designated spaces are used exclusively by people with disabilities?	Yes	No	
Is it sufficient?			
2.1.22 Is there a possibility of booking a parking space (via telephone or email)	Yes	No	
2.1.23 Are the signs/ symbols used easy to comprehend and appropriately located? (please take photos)	Yes	No	
2.1.24 Are there instructions fot the accessible route to the inside of the building?	Yes	No	
Where are they placed? (please mark them on the map)			
Are they also provided in tactile form?			

2.1.26 Is there a space of 3.6m width available near the building's entrance to provide easier disembarcation of people with disabilities (please measure the space available enar the bldngs entrance)	Yes	No	
2.2 Approach route			
2.2.1 Does the building have a surrounding area (garden, yard) that a visitor has to go through?	Yes	No	
2.2.2 Is there a route on the walkway reaching the building's entrance without stairs or other obstacles? (if yer please draw on the map, and take a photo)	Yes	No	
2.2.3 What is the width of the walkway reaching the building's entrance?			
2.2.4 Is there a provision for bridging height differences along this route? (please take a photo and note its properties)	Yes	No	
2.2.5 Can all the objects existing on route be identified by people with vision problems using a cane? (make sure that all objects on the ground can be identified using a cane and that there is a free height of more than 2,2m available) (it is hard to measure, bu we will try to do it)	Yes	No	
	Yes	No	
2.2.6 Is there a TGSI available? (for people with visual impairments).			
If yes, is it according to the guidelines?			
2.2.7 If a TSI has been implemented, have bad practices and poor workmanship created complaints by other users? (it is hard to confirm, but we will try to do it)	Yes	No	
2.2.7 Is the walking surface slip resistant and smooth? (type of pavement used, maintenance status)	Yes	No	
2.3 Ramps			
2.3.1 Ramp length (if there is any ramp, please mark on the map, and take a photo)			
2.3.2 Height difference between beginning and end of ramp – slope (please measure its dimensions)			
2.3.3 Ramp width			
2.3.4 Does the ramp end inside the public or is it built as an addition outside it?			
2.3.5 Where exactly does the ramp end (eg. At a sheltered area near the entrance) (please draw its beginning and end points on the map)			
2.3.6 In which way are the ramp's sides protected? (solid kerbs, railing etc)			
2.3.7 Does the ramp have landings at its beginning and end?	Yes	No	
2.3.8 If there is no landing at the end of the ramp, is there enough space available for the opening of a door (if a door exists) (please measure available space at the and of the ramp)	Yes	No	
2.3.9 Does the ramp have a landing in the middle due to increased length (for ramps more than 10m long), change of slope or direction?	Yes	No	
2.3.10 Dimensions of landings (particularly in case of direction change)			
2.3.11 Are TSIs signifying danger placed at the beginning and end of	Yes	No	

ramps?			
2.3.13 In which way are the ramp's sides protected? (solid kerbs, railing etc)			
2.3.14 In which height is the upper level of the used handrails (recommended 70 and 90 cm.)			
2.3.15 Is the ramp's surface slip-resistant, stable, easy to maintain?	Yes	No	
2.3.16 Does the ramp have a landing in the middle due to increased length (for ramps more than 10m long), change of slope or direction?	Yes	No	
2.3.17 Are the landings marked with colour-contrast?	Yes	No	
2.3.18 Are ramps located at logical places? (we can determine at the evaluation stage)	Yes	No	
2.3.19 In case the ramp's width exceeds 3,0m is there a continuous handrail in the middle?	Yes	No	
2.3.20 What is the shape of the handrails' cross-section? (please take a photo, or draw a scketch)			
Does it facilitate their use?	Yes	No	
2.3.21 Do the handrails have enough colour-contrast with the environment?	Yes	No	

APPENDIX 4. Checklist for evaluating accessibility of buildings

Objectives of the checklist's creation

The checklist was developed as a tool to assist the evaluation of buildings from the point of view of users groups with reduced mobility.

The use of the list facilitates the systematic identification and evaluation of the physical condition of buildings in terms of their accessibility for people with different impairments. To this end, the list systematically helps to identify obstacles at the building scale which could restrict the ability of movement of various categories of people with disabilities. Such a systematic approach for identifying and recording various aspects obstacles such as their location, geometry and nature is a fundamental prerequisite for evaluating the accessibility level of buildings as well as developing proposals for their elimination.

Structure of the checklist

The second part of the checklist is designed particularly for campus buildings' use.

The list includes various groups of "structural elements" of the buildings which may function as obstacles. The checklist created has a very analytical form in order to be easy to use, not only from designers, planners, and engineers but from the building's employees and visitors as well. Thus, the data collected can be easily updated.

The present checklist is the result of review and synthesis of various existing ones with the addition of original elements, developed during the EUVATOS POLIS ("Accessible city") project of the Aristotle University of Thessaloniki and the Municipality of Thessaloniki. The checklists produced by the EUVATOS POLIS project were based on the Americans with Disabilities Act checklist for existing facilities as well as on relative checklists developed by international associations of disabled people (e.g. Royal Association of Deaf people, American Foundation for the Blind etc) as well as on similar checklists already used by the Hellenic Ministry of Internal Affairs or produced in the frame of educative projects of the Aristotle University of Thessaloniki - School of Civil Engineers.

The checklist is composed of nine main sections with main headings as follows:

10. General information
11. Entrances
    - entrances-general,
    - entrances- approach,
    - entrances- stairs/ramps general,
    - entrances- ramps,
    - entrances- stairs,
    - entrances- doors
12. Circulation (horizontal and vertical movement) with subsections of
    - horizontal movement
        - entrance halls, corridors
    - vertical movement
        - general,
        - elevators and lifts,
        - stairs,

- ramps

13. Services/Equipment
    - services general,
    - restrooms, toilets, showers,
    - service equipment
        - public phones,
        - water coolers
        - ATMs
14. Emergency cases
    - emergency exits,
    - emergency alarms and alert systems,
    - emergency evacuation
15. Signage
16. Acoustics
17. Lighting
18. Closed spaces with subsections of
    - educational/ academic /employee rooms and halls
        - classrooms, labs, studios
        - offices
    - amphitheatres and conference halls,
    - gastronomic halls (dining halls, cafeterias, cafes)
    - transaction areas (shops, banks, kiosks)

Since this checklist is designed to be used mainly in higher educational settings, it is designed to specially cover wide-variety of spaces that a university environment might be composed of. Also, several common areas that every building generally might have are grouped as separate sections (e.g. entrances) to be utilized for every building under investigation.

Methodology for applying the checklist

In application of this checklist, the following are some guidelines to follow:

Before the application:

1. First, carefully study the checklist and make yourself familiar with the questions.
2. Obtain a general campus map as well as drawings of individual university buildings. If gathering this information is not possible, then with site visits, draw a sketch of each building before the application of the checklist.
3. Prepare a data recording form with copying required sections from the checklist.
4. Prepare a cover page or a header for the application form with spaces provided to record investigator's information and information on date and building studied. Suggested information should include, "name, last name of the auditor", "date, time of the investigation" and the building names.
5. Create multiple copies of the forms to be used for each building floor to be studied.
6. Obtain a photo-camera (digital camera preferable) to use during investigation.
7. Get a notepad for easy recording on the checklist.
8. Get a couple of red and green pens, pencils, markers etc for easy identification of obstacles on the map.

During the application:

1. Identify a starting point (the building's entrance is recommended) and draw the route you followed on the drawing.
2. Start with the questions and be sure to take a note for each obstacle you see on the drawing of the appropriate floor.
3. Write your answers to the question to the area provided next to the question.
4. Be sure to take notes such as any additional information or comments on the right section provided in the questions area.
5. Please take photos of the obstacles you observe and take notes about in the checklist. It is also important to remember where the photos were taken, so it is advised that you take a note of the photo number either on the map or somewhere that you can remember afterwards.
6. Be sure to include any additional observations you make that are not included in the checklist.

These are some suggestions for the checklists use for different buildings:

1. For each building be sure to include section 1 (general information), section 2 (entrances), section 3 (circulation), section 4 (services), section 5 (emergency cases), section 6 (signage), section 7 (acoustics) and section 8 (lighting)
2. For the specific purpose of the building (classrooms, dining etc) appropriate sections of section's 9 (closed spaces) questions may be selected. Be sure to add section's 6 (signage), section's 7 (acoustics), and section's 8 (lighting) questions to these sections when investigating closed spaces other than entrances or circulation areas.
3. Investigations on the drawings may be done beforehand; appropriate sections may be selected for each building floor to facilitate on site application.

Checklist for evaluating the accessibility level of buildings

1. GENERAL INFORMATION 1.1 Please specify when building accept visitors/employees in terms of operation days and hours (check all that apply)							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
On working hours							
On night hours							
Other							
Operating times(specify)							
1.2. Does the building operate year - round or seasonal/specific times of the year?	Year-round		Seasonal/specific times of the year				
			Specify when				

2. Entrance (s)			**Information**
2.1. Entrance(s) General			
2.1.1 How many entrances does the building have?			Where?
2.1.2. How many of these are used by the general public?			Which ones?
2.1.3. Which one(s) being used as the main entrance(s)?			
2.2. Entrances Approach			
2.2.1. If there are sidewalks in front of the entrance are they accessible? Ramps, appropriate free space of 90cm for the circulation of wheelchair users, tactile surface indicators for the blind people etc.	Yes	No	
2.2.2. Is there clear level space in front of the entrance that can accommodate a wheelchair manoeuvre? (150cm) swing 50 cm next to?	Yes	No	Specify dimensions
2.2.3. How is the area in front of the building entrance levelled in relation to the walkway? Same level, level change with step(s), ramp(s) , lift(s) or a combination?	Same level Step(s) Ramp(s) Lifts(s)		
2.2.4. How is the area in front of the building entrance levelled in relation to the entrance door? Same level, level change with step(s), ramp(s), lift(s) or a combination?	Same level Step(s) Ramp(s) Lifts(s)		
2.2.5. In front of the building entrance, if there are any vertical thresholds where floor materials change, are they less than 1 cm?	Yes	No	

2.3. Entrances-Ramps/Stairs General			
2.3.1. Are the any level difference between the walkway and the entrance area in front of the building?	Yes	No	
2.3.2. If yes, how they are bridged? Stairs or ramps?			
2.4.Entrances- Ramps			
2.4.1. If a ramp is used, where is it located?	Specify on map		
2.4.2. If a ramp is used, it is located in a logical place relative to the entrance?	Yes	No	
2.4.3. If the ramp is not visible at a first glance does signage exist guiding to the ramp?	Yes	No	
2.4.4. If a ramp is used does the ramp extend to the walkway or is it sunken in the entrance area?			
2.4.5. If a ramp is used, is it sheltered?	Yes	No	
2.4.6. If ramp is used, what is the shape of the ramp (linear, l-turn, u-turn)			
2.4.7. If ramp is used, what is the length of the ramp?			
2.4.8. If ramp is used, what is the width of the ramp?			
2.4.9. If ramp is used, what is the height difference between beginning and end of ramp – slope?			
2.4.10. Does the ramp have landings at its beginning and end?	Yes	No	
2.4.11. If there are landings in the beginning and the end, what are their dimensions?			
2.4.12. If there is no landing at the end of the ramp, is there enough space available for the opening of a door (if a door exists)	Yes	No	
2.4.13. Does the ramp have a landing in the middle due to increased length (for ramps more than 10m long), change of slope or direction?	Yes	No	
2.4.14. If there are landings in the middle, what are their dimensions?			
2.4.15. Are the landings marked with colour-contrast?	Yes	No	
2.4.16. Are tactile surface indicators signifying “danger” placed at the beginning and end of ramps?	Yes	No	
2.4.17. Is the ramp’s surface slip-resistant, stable, easy to maintain	Yes	No	
2.4.19. In which way are the ramp’s sides protected? (solid kerbs, railing etc)	Yes	No	
2.4.20. In which height is the upper level of the handrails used? (recommended height 70 and 90cm.)			
2.4.21. In case the ramp’s width exceeds 300 cm, is there a continuous handrail in the middle?	Yes	No	

2.4.22. What is the shape of the handrails' cross-section? Does it facilitate their use?	Yes	No	Sketch shape
2.4.23. Do the handrails have enough colour-contrast with the environment?	Yes	No	
2.4.24. Do the handrails continue beyond the end of the ramps by a 30cm minimum?	Yes	No	
2.4.25. Does the ramp have a landing in the middle due to increased length (for ramps more than 10m long), change of slope or direction?	Yes	No	
2.5.Entrances- Stairs			
2.5.1. If stairs are used at the building's entrance where are they located?	Specify on map		
2.5.2. What is the form of the stairs (straight, with a turn and landing, round etc)			
2.5.3. What is the width of the stairs?			
2.5.4. What is the height of the riser?			
2.5.5. What is the depth of the tread?			
2.5.6. Do the treads have the same depth along the walking line?	Yes	No	
2.5.7. Do the steps have rounded noses?	Yes	No	
2.5.8. Is there proper lighting in the staircase?	Yes	No	
2.5.9. What is the material used for the stairs?			
2.5.10. Are the treads slip-resistant? If not, do treads have slip resistant materials at their edge?	Yes	No	
2.5.11. Are there tactile warning surfaces at the foot and head of stairs (tiles marking "Danger)	Yes	No	
2.5.12. Is there provision for bridging by ramp small height differences (5cm) at the same level?	Yes	No	
2.5.13. Are there handrails provided at both sides of the stairs?	Yes	No	
2.5.14. If yes, at what is the height of the handrails?			
2.5.15. If there are any landings, are there handrails provided at landings?	Yes	No	
2.5.16.If yes, what is the height of the handrails			
2.5.17. Do the handrails continue beyond the end of the stairs by a 30cm minimum?	Yes	No	
2.5.18. Do the handrails have a cross-section which facilitates their use? What is the diameter of the handrail? (preferred 45 – 50mm of circular cross section)	Yes	No	Sketch cross section and shape of handrail
2.5.19. If the stairs run along a wall surface, is the distance between the handrail and the wall larger the 4cm for smooth walls and 6cm for harsh walls?	Yes	No	
2.5.20. Are handrails provided at the middle of stairs when the unobstructed width of stairways is more than 300 cm?	Yes	No	

2.5.21. Do handrails provide enough colour contrast with the environment?	Yes	No	
2.5.22 .Are the steps' edges marked with colour contrasting material. Is there visual marking of landings?	Yes	No	
2.5.23. Are all dangerous areas suitably protected?	Yes	No	
2.6. Entrances Doors			
2.6.1. Is the entrance door open to visitors/employees/students at all times when the building operates? (locked, coded, unlocked etc)	Yes	No	
2.6.2. Is the main entrance protected from weather elements (e.g. shelter)? If yes, is it partially or fully sheltered?	Yes Partial or fully	No	Specify the shelter means
2.6.3. Is the main entrance's door swinging, revolving or sliding? (automatic sliding doors are recommended)	Yes	No	Specify type
2.6.4. What is the clear width of the accessible door? (Recommended 120cm, minimum 90cm.)			
2.6.5. The accessible door is the main entrance? If it is not, show its location on the map/drawing.	Yes	No	
2.6.6. Is there a vestibule?	Yes	No	
2.6.7. If yes, what are its dimensions?			
2.6.8. How are its doors opening (swinging, sliding)?			
2.6.9. Do they swing inwards or outwards?			
2.6.10. Do the doors in the vestibule open in the same direction?	Yes	No	
2.6.11. Are the doors (entrance door or vestibule doors) manually operated or automatic?	Specify type (manual/ auto)		
2.6.12. If automatic doors are used, are they equipped by a sensing device or a push button?	Specify system (push button/sensor)		
2.6.13. If there is a push button, is it raised? Does it have clear signage and texture?	Specifics of the push button		
2.6.14. Is sufficient time provided for a user with mobility impairments?	Specify enough time/ not enough)		
2.6.15. Is there a way to keep automatic doors open?	Yes	No	
2.6.16. Is there a doormat?	Yes	No	
2.6.17. If yes, does it hinder easy entrance?	Yes	No	Give specifics

2.6.18. How is the doormat placed, is it directly put on the floor tiling, sunken fully, or sunken partially? (the maximum vertical threshold should be 1cm)			
2.6.19. Does the entrance create enough colour contrast with the surroundings?	Yes	No	
2.6.20. What is the material used for the main entrance door (metal, wood, glass etc.)			
2.6.21. If the entrance gate is made of translucent material, does contrasting colour banding at eye level and between 80cm – 100cm above floor level exist?	Yes	No	If yes, give specifics
2.6.22. What is the height of the door handle?			
2.6.23. What is the shape of the door handle?			
2.6.24. Can the door handle be operated with a closed fist?	Yes	No	
2.6.25. Is there significant force required to open the door? (such as a 6 year old can open)	Yes	No	
2.6.26. Do security systems of automatic doors (if they exist) have audible and visual warnings when they are activated?	Yes	No	
2.6.27. Is there enough space to park motorised scooters near the entrance in case these cannot move inside the building?	Yes	No	

3. CIRCULATION- HORIZONTAL AND VERTICAL MOVEMENT			
3.1. CIRCULATION- GENERAL			
3.1.1. How many floors does the building have?			
3.1.2. Which floors are open for public/students/employees use and access?			
3.2. Horizontal movement- Entrance halls			
3.2.1. Does the accessible entrance lead directly to an area serving the visitor or to a lift?	Yes	No	
3.2.2. If that is not the case, is there an accessible route leading to the above?	Yes	No	
3.2.3. Is there free space of 150cm X150 cm in the entrance hall?	Yes	No	
3.2.4. If access to public serving areas is done through stairs, is there a ramp or a lift available?	Yes	No	
3.2.5. Does the entrance area allow (dimensions – form) the installation of an information desk?	Yes	No	
3.2.6. If there is an information desk, is it accessible to wheelchair users? Lower height of the transaction bench at a length of 1,00m, enough free space (150X150cm) in front of the desk	Yes	No	
3.2.7. Is there free 150cm x 150cm area in front of the lift?	Yes	No	
3.3. Horizontal movement- Corridors			
3.3.1. What is the average free width of the building's corridors (not counting furniture or other obstacles?)	Specify width		
3.3.2. What is the minimum width encountered?	Specify minimum width		
3.3.3. Is there free space 150cmx150cm available where corridors change direction?	Yes	No	Specify dimensions
3.3.4. Are there any furniture or objects that create obstacles for free movement in the corridors?	Yes	No	If yes, specify what(s) and where(s).
3.3.5. Are the objects (such as fire extinguishers, water fountains, trashcans etc.) placed/mounted along the same side of the corridors so that people with disabilities can follow the other wall without obstacles?	Yes	No	
3.3.6. What is the material used on floor?	Specify material		
3.3.7. Does the floor material used allow easy movement of people with disabilities?	Yes	No	
3.3.8. Is it slip-resistant?	Yes	No	
3.3.9. Are polishing products used on the floor?	Yes	No	

3.3.10. Are there any maintenance problems on floors such as raised tiles?	Yes	No	
3.3.11. If carpeting or mats are used, are they fixed (at the sides or edges)?	Yes	No	
3.3.12. Are there elements on the corridor floor that possibly could cause danger? (loose cables etc)	Yes	NO	
3.3.13. Does the corridor floor have a different colour and texture than adjacent surfaces?	Yes	No	
3.3.14. Does the floor have any drawings or shapes with changes in colour?	Yes	No	
3.3.15. Is there some form of Tactile Surface Indicator inside the building?	Yes	No	
3.3.16. In case that the corridor is on a higher level than the adjacent surfaces, is there a protective formation at its sides at least 15cm high?	Yes	No	
3.3.17. On which height are the windows' bases?			
3.4 Vertical movement - general			
3.4.1. How are the vertical connections between floors done? (check all that apply)	Staircase Lift/Elevator Escalator Ramps		
3.5. Vertical circulation- Elevators, lifts			
3.5.1. Is there an elevator?	Yes	No	
3.5.2. Is there clear signage in the building directing the visitor to the elevator, in case the elevator is not directly visible?	Yes	No	
3.5.3. For how many persons has the elevator been designed? When was it constructed?			
3.5.4. What is the clear width of the elevator's door?			
3.5.6. What are the clear dimensions of the elevator cabs?			
3.5.7. How does the elevator's door open (swinging, sliding)			
3.5.8. Is the elevator door automatic?	Yes	No	
3.5.9. Does the elevator door-closing mechanism provide enough time for a person with mobility impairments?	Yes	No	
3.5.10. Can the elevator door be fixed in the open position?	Yes	No	
3.5.11. Has the elevator got internal opening doors? Do they reduce the cabin's dimensions?	Yes	No	
3.5.12. In what height are the elevator operating buttons placed? What is their size?			
3.5.13. Are the elevator operating buttons easily visible, lighted, easy to use?	Yes	No	
3.5.14. Are the elevator operating buttons raised?	Yes	No	

3.5.15. Is there audible announcement of floors?	Yes		
3.5.16. Does the elevator serve all floors?	Yes	No	
3.5.17. Is there audible and visible signage for rise/descent and opening/ closing of elevator's doors?	Yes	No	
3.5.18 Is there Braille signage next to the elevator's doors at each level?	Yes	No	
3.5.19. In the elevator cabin, is there a way other than audible to communicate in case of an emergency?	Yes	No	
3.5.20. Are the elevators equipped by emergency phones with induction loops and volume control, visual signage and instructions for use in case of an emergency?	Yes	No	
3.5.21. Is there a height difference between the elevator's floor and the floor level? Can it be adjusted?	Yes	No	
3.5.22. Does the elevator's door create colour contrast with the door's surface?	Yes	No	
3.5.23. Are there grab bars placed in the elevator cabin? If yes, at what height?	Yes	No	
3.5.24. In case the height difference bridged is more than 120cm, is the platform lift of a closed type?	Yes	No	
3.5.25. Does the platform lift have a platform for carrying the user with their wheelchair or a folding chair?	Yes	No	
3.6.26. In case a stair-lift is used, is the minimum clear remaining width of the stairs greater than 90cm when the stair lift is in operation?	Yes	No	
3.5.27. In case the stair lift uses a folding chair, is there a wheelchair provided to the upper level?	Yes	No	
3.5.28. In case the stair lift uses a folded chair, does this remain closed when the lift is not in use?	Yes	No	
3.5.29. In case of a power cut, does the lift return automatically to the lower of the levels it connects?	Yes	No	
3.5.30 Is there a lift maintenance schedule?	Yes	No	
3.6. Vertical circulation- Stairs			
3.6.1. How many staircases do exist in the building?			
3.6.2. What is the form of the staircase (straight, with a turn and landing, round etc)			
3.6.3. What is the main staircase's width? (minimum clear width preferred 100cm, preferably 120cm)			
3.6.4. What is the height of riser? (13 – 15cm preferred, 17cm max)			
3.6.5. What is the depth of the tread?			
3.6.6. Do the treads have the same depth along the walking line?	Yes	No	
3.6.7. Do the steps have rounded noses?	Yes	No	

3.6.8. Is there proper lighting in the staircase?	Yes	No	
3.6.9. What is the material used for the construction of staircase? (metal stairs, wooden treads, concrete etc.)			
3.6.10. Are the treads slip-resistant? If not, do treads have slip resistant materials at their edge?	Yes	No	
36.11. Are there tactile warning surfaces at the foot and head of stairs (tiles marking “Danger)	Yes	No	
3.6.12. Is there provision for bridging by ramps small height differences (5cm) at the same level?	Yes	No	
3.6.13. Are there handrails provided at both sides of the stairs?	Yes	No	
3.6.14. If yes, at what is the height of the handrails?			
3.6.15. Are there handrails provided at landings?	Yes	No	
3.6.16. If yes, what is the height of the handrails			
3.6.17. Are the handrails continuous throughout the staircase?	Yes	No	
3.6.18. Do the handrails continue beyond the end of the stairs by a 30cm minimum?	Yes	No	
3.6.19. Are double handrails at both 70 and 90 cm. provided?	Yes	No	
3.6.20. Do the handrails have a cross-section which facilitates their use? What is the diameter of the handrail? (preferred 45 – 50mm of circular cross section)	Yes	No	Sketch cross section and shape of handrail
3.6.21. Is the distance between the handrail and the wall larger the 4cm for smooth walls and 6cm for harsh walls?	Yes	No	
3.6.22. Are handrails provided at the middle of stairs when the unobstructed width of stairways is more than 300 cm?	Yes	No	
3.6.23. Do handrails provide enough colour contrast with the environment?	Yes	No	
3.6.24. Are the steps’ edges marked with colour contrasting material? Is there visual marking of landings?	Yes	No	
3.6.25. Are all dangerous areas suitably protected?	Yes	No	
3.6.26. Are low windows in landings protected by bars?	Yes	No	
3.7. Vertical Circulation- Ramps			
3.7.1. How many ramps are the in the building used for vertical circulation?			
3.7.2. Where are they located?	Show on map		
3.7.3. Are ramps located at logical places?	Yes	No	
3.7.4. What is the shape of the ramp (linear, L-turn, U-turn)			

3.7.5. What is the height difference between beginning and end of ramp			
3.7.6. Does the ramp have landings at its beginning and end?	Yes	No	
3.7.7. If there are landings in the beginning and the end, what are their dimensions?			
3.7.8. If there is no landing at the end of the ramp, is there enough space available for the opening of a door (if a door exists)	Yes	No	
3.7.9. Does the ramp have a landing in the middle due to increased length (for ramps more than 10m long), change of slope or direction?	Yes	No	
3.7.10. If there are landings in the middle, what are their dimensions?			
3.7.11. Are the landings marked with colour-contrast?	Yes	No	
3.7.12. Are tactile surface indicators signifying danger placed at the beginning and end of ramps?	Yes	No	
3.7.13. Is the ramp's surface slip-resistant, stable, easy to maintain			
3.7.14. In which way are the ramp's sides protected? (solid kerbs, railing etc)	Yes	No	
3.7.15. In which height is the upper level of the handrails used? (recommended height 70 and 90cm.)			
3.7.16. In case the ramp's width exceeds 300 cm, is there a continuous handrail in the middle?	Yes	No	
3.7.17. What is the shape of the handrails' cross-section? Does it facilitate their use?	Yes	No	Sketch shape and cross section of handrail
3.7.18. Do the handrails have enough colour-contrast with the environment?	Yes	No	
3.7.19. Do the handrails continue beyond the end of the ramps by a 30cm minimum?	Yes	No	

4. Services		
4.1 Services-Restrooms- General		
4.1.1 How many accessible lavatories exist in the building? (to dispose at least appropriate door opening, enough space for free movement of wheelchair users, accessible toilet, accessible shower etc)		
4.1.2.How are the restrooms (lavatories /toilets) distributed in the building (personnel restrooms, student restrooms, public restrooms etc)	Give numbers for each along with the floor number and location	
4.1.3. Is there an accessible public restroom (lavatory/toilet) available at each floor?		
4.1.4. Is the accessible toilet separate or located in a restroom of common use? If located in another restroom specify type (2nd floor personnel etc)		

4.1.5. Are the restrooms (lavatories /toilets) concentrated/ dispersed in the building? Are they at the same location at each floor?			
4.2. SERVICES- Restrooms, Toilets, Showers			
4.2.1. Is there an accessible public restroom (lavatory/toilet) available?	Yes	No	
4.2.2. Is the accessible restroom (lavatory /toilet) gender-neutral?	Yes	No	
4.2.3. Is the accessible restroom (lavatory/toilet) open for use at all times? (open, locked, card entry etc.)			
4.2.4. If it is locked or a card entry, who has the keys and how is he notified?			
4.2.5. Is there signage directing to the accessible restroom (lavatory/toilet)?	Yes	No	
4.2.6. Is there signage provided with Braille – International Symbol of Access ?	Yes	No	
4.2.7. What is the clear width of the door entering the restroom (lavatory/toilet)?			
4.2.8. How does the door to the restroom (lavatory/toilet) operated? (automatically, push button, manually etc)			
4.2.9. If a manual door is used, what is the shape and height of the door handle?			
4.2.10. Can the door handle be operated using a closed fist?	Yes	No	
4.2.11.Does the door require significant force to open (such as a 6 year old can open)	Yes	No	
4.2.12. If a push button system is used, what is the height of the button?			
4.2.13. What type is the door to the restroom (lavatory/toilet)? (hinge, sliding, swing etc)			
4.2.14. If hinge doors, to which direction do they open? (outwards, inwards)			
4.2.15. Are there any height differences on floors at the entrance to the restroom (lavatory/toilet)?	Yes	No	
4.2.16. If there are height differences at the entrance what is the height difference?			
4.2.17. If there are height differences at the entrance how are these bridged? (step, ramp etc)			
4.2.18. What is the surface material used on restroom floor?			
4.2.19. Is there sufficient lighting in the restrooms?	Yes	No	
4.2.20. Do hallways exist in the restrooms?	Yes	No	

4.2.21. If there are hallways in the restrooms what are the dimensions of the clear space?			
4.2.22. Is there a colour contrast between toilet cabin doors and the other adjacent walls?	Yes	No	
4.2.23. Are there any height differences between the restroom floor and toilet cabin floor?	Yes	No	
4.2.24. If yes, what is the difference in height?			
4.2.25. If yes, how are these bridged? (Step, ramp etc)			
4.2.26. What is the clear door width of the toilet cabin?			
4.2.27. How does the toilet cabin door operate? (Auto/manual)			
4.2.28. What type of door is used in toilet cabins? (hinge, sliding, folding etc.)			
4.2.29. What direction does the toilet cabin door open (outwards, inwards)?			
4.2.30. What are the dimensions of the clear space in the toilet cabin?			
4.2.31. What is the distance of the toilet unit from the walls to the left and to the right?			
4.2.32. Is this area free from obstacles?	Yes	No	
4.2.33. Is there a space of minimum 150cm radius where a wheelchair user can rotate without obstacles?	Yes	No	
4.2.34. Is the toilet equipped with appropriate handrails?	Yes	No	
4.2.35. What is the height of handrails from ground level?			
4.2.36. What is the length of handrails?			
4.2.37. What is the height of the toilet unit?			
4.2.38. What type is the toilet unit? (Wall mount, floor mount etc)			
4.2.39. What type is the flush tank? (wall mounted high, toilet mounted, embedded etc)			
4.2.40. Does the flush tank form an anatomic “back” for the user?	Yes	No	
4.2.41. How is the flush tank operated? (manual pull type, manual push type, auto with sensor)			
4.2.42. If manual flush tank system is used, what is the height of the flush tank operator cord/button?			

4.2.43. If manual system is used, does it require significant force to operate?	Yes	No	
4.2.44. Is there a basin in the toilet cabin?	Yes	No	
4.2.45. What is the free height under the basin?			
4.2.46. Do waste pipes under the basin prohibit easy use by a wheelchair user?	Yes	No	
4.2.47. Are hot water pipes under the basin properly insulated?	Yes	No	
4.2.48. Does the basin have a lever-operated mixer tap?	Yes	No	
4.2.49. Is the basin of “anatomical” shape?	Yes	No	
4.2.50. What is the height of soap dispenser from the ground? Is it easy to use? Is it within reach of a wheelchair user?	Yes	No	
	specify height		
4.2.51. What is the height of the mirror from the ground? Can a wheelchair user easily use it or the mirror should be inclined?	Yes	No	
	Specify height		
4.2.52. Are there shelves provided? (a changing shelf to the side of the WC at a height of 95cm, a lower shelf at 70cm above floor level by the wash basin)	Yes	No	
	specify height		
4.2.53. Is there a system providing toilet paper by sheet, helping users with only one hand?	Yes	No	
4.2.54. Are there any showers?	Yes	No	
4.2.55. If yes, are these accessible? (without any height difference from the surrounding floor, with appropriate dimensions for wheelchair users –minimum 90X150cm)	Yes	No	
4.2.56. If there is an accessible shower, are there grab rails and a folding seat provided? What is their height from the ground?	Yes	No	
	Specify height		
4.2.57. Is there an alarm system in case of emergency which contains a cordon placed around the room, parallel to the ground at a height of 10-15cm from the floor, so that it can easily be used? Who is receiving the alarm notice?	Yes	No	
4.2.58. Does the floor ensure proper drainage of water?	Yes	No	
4.2.59. Does the shower have a lever-operated mixer tap? What is its height from the ground?			
4.2.60. Can the door of the accessible restroom (lavatory/toilet) be opened from the outside in case of emergency, although it is locked from the inside?	Yes	No	

4.2.61. Is there enough colour contrast provided between the equipment and the walls?	Yes	No	
4.2.62. If there is no basin in the accessible toilet cabin is there any accessible basin in the lavatory area of common use (with appropriate free space underneath, easy to use accessories etc)?			
4.2.63. Is there a room for baby-care?	Yes	No	
4.2.64. If yes where is it located?	Show on map		
Service Equipment- Public telephones, water coolers, ATMs			
4.3.Service equipment- Telephones			
4.3.1. Where are the public telephones located in the building?	Show on map		
4.3.2. What is the free height under the telephone?			
4.3.3. What is the free space in front of the telephone?			
4.3.4. Does the telephone have buttons in Braille?	Yes	No	
4.3.5 Is the telephone compatible with hearing aids?	Yes	No	
4.3.6. Can the phone's volume be adjusted?	Yes	No	
4.3.7. Is it equipped with a text phone?	Yes	No	
4.3.8. If yes, does it have proper signage?	Yes	No	
4.3.9. Are there phone books provided at a suitable height?	Yes	No	
4.3.10. Is the telephone cord longer than 75cm?	Yes	No	
4.3.11. What is the distance of button from the ground?			
4.4. Services- Water coolers			
4.4.1. Where are the water coolers providing drinkable water located in the building?			
4.4.2. What is the clear height from the ground?			
4.4.3. What is the free space in front of the water coolers?			
4.4.4. What is the height of water cooler's operating button from the ground?			
4.4.5. What type of buttons is used to operate the water coolers?			
4.5. Services- ATMs			
4.5.1. Where are the ATMs located in the building?	Show on map		
4.5.2. What is the height of the button panel from ground?			
4.5.3. What is the height of the screen from ground?			
4.5.4. Is audio interaction system provided in ATMs as well?	Yes	No	
4.5.5. Are the buttons equipped with Braille as well?	Yes	No	

4.5.6. Is there a strong colour contrast between fonts and background of the screen?	Yes	No	
4.5.7. Is there any clear knee space provided so that a wheelchair can reach? (minimum 40 cm)	Yes	No	
4.5.8. Is there enough free space in front of the ATM (150X150cm) for the manoeuvres of a wheelchair?	Yes	No	

5. Emergency cases			
5.1. Emergency- exits			
5.1.1. How many emergency exits does the building have?	give number and show on map		
5.1.2. How many of these exits are accessible? Which ones?	Give number and show on map		
5.1.3. Are there accessible emergency exits at every floor?	Yes	No	
5.1.4. Where do emergency exits lead? (public space, footway etc.)			
5.1.5. If the building has a terrace, can it be accessed?	Yes	No	
5.2. Emergency- Alarm and alert systems			
5.2.1. Is there both light and audible alarm?	Yes	No	
5.2.2. What other systems for alerting visitors are provided in case of emergency?			
5.2.3. What is the colour and frequency of the alarm?			
5.2.4. What is the volume of audible sign?			
5.2.5. Can the alarm be seen from all rooms of the building?	Yes	No	
5.2.6. Can the alarm be easily activated by the visitor?	Yes	No	
5.3. Emergency- evacuation			
5.3.1. Are there special wheelchairs provided for the transportation of people with disabilities in case of emergency?	Yes	No	
5.3.2. Is there info provided about the building's evacuation process which can be understood by people with hearing and sight problems?	Yes	No	
5.3.3. Is there an active fire safety study?	Yes	No	
5.3.4. What are the longest routes according to the passive fire safety study?			
5.3.5. Any provisions, independent from the building's electric supply provided? What are its clear dimensions?	Yes	No	
5.3.6. Are the longest routes according to the passive fire safety study accessible?	Yes	No	
5.3.7. Is there an evacuation plan for the public in case of emergency?	Yes	No	

5.3.8. Is there a special plan (or provision in the general plan) for the evacuation of the building by visitors with disabilities in case of emergency?	Yes	No	

6. Signage			
6.1. Is there a tactile map indicating routes inside the building and the services provided?	Yes	No	
6.2. Is there clear signage concerning different uses of the building's rooms? Where is it located (doors, floors etc.)	Yes	No	
6.3. Where are signs located on doors (centre, side)? What form do they have?	Sketch		
6.3. What kind of typeface is used? What's the letters' size?			
6.4. Are tactile characters with colour contrast used?	Yes	No	
6.5. Is Braille signage used?	Yes	No	
6.6. Do signs have anti-reflective surface?	Yes	No	
6.7. Are pictograms used? Are they according to guidelines?	Yes	No	
6.8. Is signage easy to understand?	Yes	No	
6.9. Are rooms numbered?	Yes	No	
6.10. Is the colour of the doorplates different from the one on the doorframe and the adjacent wall?	Yes	No	
6.11. How is information provided at the front desk (e.g. "office 410 in the Department of Transportation")			

7. Acoustics			
7.1 Do the reception and public areas of the building have good acoustics? (Is non- reflecting surface used? Is environment noise not exceeding 35db, which is the recommended noise level for classrooms according to US guidelines? – this requires the presence of proper equipment-	Yes	No	
	Specify any special material used for acoustics		
7.2. In case it is considered necessary, is there a quiet room where a confidential discussion with a person with hearing problems can take place?	Yes	No	
	If yes, where?		
7.3. Are there any induction loops in use?	Yes	No	
7.4. If yes, where are they located?			

8. Lighting			
8.1. Is there sufficient lighting that allows lip reading, the use of sign language and assists people with sight problems?	Yes	No	
8.2. Do the surfaces used on floors and walls create reflections?	Yes	No	
8.3. Does the area have artificial lighting if needed?	Yes	No	
8.4. If yes, is it sensor operated or manual?			
8.5. If manual is used, how high are the buttons used to operate them from the ground?			

9. CLOSED SPACES- EDUCATIONAL/ACADEMIC/EMPLOYEE ROOMS, HALLS			
9.1. Classrooms, Labs			
9.1.1. What is the type of the educational setting (classroom, lab, studio etc)?			
9.1.2. What is the clear width of the door opening?			
9.1.3. How does the door to the room operated? (automatic, push button, manual etc)			
9. 1.4. If a manual door is used, what is the shape and height of the door handle?			
9.1.5. Can the door handle be operated using a closed fist?	Yes	No	
9.1.6. Does the door require significant force to open (such as a 6 year old can open)	Yes	No	
9.1.7. If a push button system is used, what is the height of the button?			
9.1.8. What type is the door to the room? (hinge, sliding, swing etc)			
9.1.9. If hinge doors, which direction do they open? (outwards, inwards)			
9.1.10. Are there any height differences on floors at the entrance to the rooms?	Yes	No	
9.1.11. If there are height differences at the entrance what is that height difference?			
9.1.12. If there are height differences at the entrance how are these bridged? (step, ramp etc)			
9.1.13. What is the surface material used on room floor?			
9.1.14. Is the seating/ furniture fixed or can it be moved in order to facilitate its use by people with disabilities and different attributes?			

9.1.15. If furniture is fixed, is there a special area designated for wheelchair users? Where is it located?	Yes	No	
	Show location on map		
9.1.16. Is there enough space for a wheelchair user to circulate within the room? (width of 90 cm minimum, 120 cm recommended)?	Yes	No	
9.1.17. Is there enough space for a wheelchair user to manoeuvre in the room (150cmX150cm required)?	Yes	No	
9.1.18. In case fixed desks are used (e.g. labs) what is the height of the clear space underneath from ground?			
9.1.19. Does the furniture used create colour contrast for easy identification by people with low-vision?	Yes	No	
9.1.20. How high is the windows lower level from ground?			
9.1.21. In case blinds or curtains are used, can these be operated by a person using wheelchair?	Yes	No	
9.2. OFFICES			
9.2.1. What is the type of the office setting (professor offices, administrative office etc.)			
9.2.2. What is the clear width of the door opening?			
9.2.3. How does the door to the room operated? (automatic, push button, manual etc)			
9.2.4. If a manual door is used, what is the shape and height of the door handle?			
9.2.5. Can the door handle be operated using a closed fist?	Yes	No	
9.2.6. Does the door require significant force to open (such as a 6 year old can open)	Yes	No	
9.2.7. If a push button system is used, what is the height of the button?			
9.2.8. What type is the door to the room? (hinge, sliding, swing etc)			
9.2.9. If hinge doors, to which direction do they open? (outwards, inwards)			
9.2.10. Are there any height differences on floors at the entrance to the rooms?	Yes	No	
9.2.11. If there are height differences at the entrance what is that height difference?			
9.2.12. If there are height differences at the entrance how are these bridged? (step, ramp etc)			
9.2.13. What is the surface material used on room floor?			
9.2.14. Is the furniture fixed or can it be moved in			

order to facilitate its use by people with disabilities and different attributes?			
9.2.16. Is there enough space for a wheelchair user to circulate within the room? (width of 90 cm minimum, 120 cm recommended)?	Yes	No	
9.2.17. Is there enough space for a wheelchair user to manoeuvre in the room (150cmX150cm required)?	Yes	No	
9.2.18. In case fixed desks are used what is the height of the clear space underneath from ground?			
9.2.19. Does the furniture used create colour contrast for easy identification by people with low-vision?	Yes	No	
9.2.20. How high is the windows lower level from ground?			
9.2.21. In case blinds or curtains are used, can these be operated by a person using a wheelchair?	Yes	No	
9.4. CLOSED SPACES- AMPHITHEATRES, CONFERENCE HALLS			
9.4.1. What is the type of the conference setting (conference hall, amphi-classroom, amphitheatre etc)?			
9.4.2. What is the clear width of the door opening that lead to the main area?			
9.4.3. How does the door to the main hall operated? (automatic, push button, manual etc)			
9.4.4. If a manual door is used, what is the shape and height of the door handle?			
9.4.5. Can the door handle be operated using a closed fist?	Yes	No	
9.4.6. Does the door require significant force to open (such as a 6 year old can open)	Yes	No	
9.4.7. If a push button system is used, what is the height of the button?			
9.4.8. What type is the door to the room? (hinge, sliding, swing etc)			
9.4.9. If hinge doors, which direction do they open? (outwards, inwards)			
9.4.10. If double doors are used, do they open the same direction? inwards, outwards)	Yes	No	
	Specify directions		
9.4.11. If double doors are used, what is the free space of the hall in between the doors?			
9.4.10. Are there any height differences on floors at the entrance to the main hall?	Yes	No	
9.4.11. If there are height differences at the entrance to the main hall what is that height difference?			
9.4.12. If there are height differences at the entrance to the main hall how are these bridged? (step, ramp etc)			

9.4.13. What is the surface material used on hall floor?			
9.4.14. Does the main hall have levelled seating?	Yes	No	
9.4.15. If yes, does it have an accessible route that reaches accessible seating for wheelchair user and people with mobility impairments?			
How many spaces are provided for wheelchair users? Where are they located? What are their dimensions?			
9.4.16. How and where is the accessible route provided?			
9.4.17. Is the seating fixed or can it be moved in order to facilitate its use by people with disabilities and different attributes?			
9.4.18. What is the height of the seats basis?			
9.4.19. Is there enough space for a wheelchair user to circulate within the hall? (width of 90 cm minimum, 120 cm recommended)?	Yes	No	
9.4.20. Is there enough space for a wheelchair user to manoeuvre in the hall (150cmX150cm required)?	Yes	No	
9.4.21. In case fixed desks are used what is the height of the clear space underneath from ground?			
9.4.22. Does the furniture used create colour contrast for easy identification by people with low-vision?	Yes	No	
9.4.23. Is there a stage in the main hall?	Yes	No	
9.4.24. In case there is a stage, is access from the main hall for people with disabilities provided?	Yes	No	
9.4.25. If yes, where and how is it provided?			
9.4.26. Is the speaker-stand accessible?			
9.4.27. Is there a backstage area?	Yes	No	
9.4.28. If yes, is this area accessible?			

9.5. CLOSED SPACES- GASTRONOMIC ROOMS, HALLS (dining halls, cafeterias)		
9.5. Dining halls		
9.5.1. What is the type of the dining setting and what is the service type (sit-in, self-serve, dining hall, café etc.)?		
9.5.2. What is the clear width of the door opening?		
9.5.3. How does the door to the room operated? (automatic, push button, manual etc)		

9.5.4. If a manual door is used, what is the shape and height of the door handle?			
9.5.5. Can the door handle be operated using a closed fist?	Yes	No	
9.5.6. Does the door require significant force to open (such as a 6 year old can open)	Yes	No	
9.5.7. If a push button system is used, what is the height of the button?			
9.5.8. What type is the door to the room? (hinge, sliding, swing etc)			
9.5.9. If hinge doors, which direction do they open? (outwards, inwards)			
9.5.10. Are there any height differences on floors at the entrance to the dining areas?	Yes	No	
9.5.11. If there are height differences at the entrance what is the height difference?			
9.5.12. If there are height differences at the entrance how are these bridged? (step, ramp etc)			
9.5.13. What is the surface material used on dining hall floor?			
9.5.14. If it is a self-service area, is the service counter height accessible for wheelchairs users? What is the counter height?	Yes	No	
9.5.15. If the self-service area has fixed route, what is the width of the clear space in the self service route?			
9.5.16. If the self-serve area is not accessible, is sit-in service provided for people with mobility impairments?			
9.5.17. Are the seating/ tables fixed or can they be moved in order to facilitate their use by people with disabilities and different attributes?			
9.5.18. If furniture is fixed, is there a special area designated for wheelchair user? Where is it located?	Yes	No	
	Show location on map		
9.5.19. Is there enough space for a wheelchair user to circulate within the dining hall? (width of 90 cm minimum, 120 cm recommended)?	Yes	No	
9.5.20. Is there enough space for a wheelchair user to manoeuvre in the hall (150cmX150cm required)?	Yes	No	
9.5.21. In case fixed tables are used what is the height of the clear space underneath from ground?			
9.5.22. Does the furniture used create colour contrast for easy identification by people with low-vision?	Yes	No	
9.5.23. How are the transactions carried? (standing behind a counter, seated at offices, queues etc.)			
9.5.24. Is there a lower accessible desk provided for persons with disabilities?	Yes	No	

9.5.25. What is the height of upper surface of the accessible counter from the ground?			
9.5.26. Is there the international symbol for accessibility signifying the accessible counter?	Yes	No	
9.5.27. Does the public have immediate visual/ audible contact with the employee? Is this adequate?			
9.5.28. Are there written texts or signs informing visitors for the services provided?			
9.5.29. Can a person with disability approach the personnel inside the counter? (e.g. to see the service's manager)	Yes	No	
9.6. CLOSED SPACES- Transaction, shops, banks, reception desks			
9.6.1. What is type of the setting? (bookshop, kiosk, bank, etc.)			
9.6.2. What is the clear width of the door opening?			
9.6.3. Are there any height differences on floors at the entrance to the transaction areas?	Yes	No	
9.6.4. If there are height differences at the entrance what is the height difference?			
9.6.5. If there are height differences at the entrance how are these bridged? (step, ramp etc)			
9.6.6. Is there enough space for a wheelchair user to circulate within the dining hall? (width of 90 cm minimum, 120 cm recommended)?	Yes	No	
9.6.7. Is there enough space for a wheelchair user to manoeuvre in the hall (150cmX150cm required)?	Yes	No	
9.6.8 How are the transactions carried? (standing behind a counter, seated at offices, queues etc.)			
9.6.9. Is there a lower accessible desk provided for persons with disabilities?	Yes	No	
9.6.10. What is the height of upper surface of the accessible counter from the ground?			
9.6.11. Is there the international symbol for accessibility signifying the accessible counter?	Yes	No	
9.6.12. Does the public have immediate visual/ audible contact with the employee?	Yes	No	
9.6.13. Are there written texts or signs informing visitors for the services provided?	Yes	No	
9.6.14 Can a person with disability approach the personnel inside the counter? (e.g. to see the service's manager)	Yes	No	

9.6.15. Can the employees at the building's reception know ways to communicate with deaf people or people with hearing impairments?	Yes	No	
9.6.10. Can a person with hearing impairments communicate through the use of a fax machine? Is there an employee informed about this?	Yes	No	
9.6.11. Is there material offered in Braille, audible form or enlarged text?	Yes	No	

APPENDIX 5. Checklist for evaluating the accessibility of the educational procedure

Objectives of the checklist creation

The checklist was developed as a tool to assist the evaluation of the educational procedure from the point of view of students with various disabilities.

The use of the list facilitates the systematic identification and evaluation of the obstacles which could restrict the ability of students with disabilities to participate in various educational activities.

Structure of the checklist

The list is based on the needs of students with disabilities in the educational procedure; as these are identified in the first deliverable of the ACTUS project "Tasks and needs of students with disabilities in higher education". It is focused on the educational procedure itself, thus it does not include topics related to physical accessibility, which are covered at the other checklists which comprise this deliverable.

In this part, problems of people with disabilities can be identified through a questionnaire survey and information can be obtained by University Administration, Disability Coordination Unit and Faculties.

Checklist for evaluating the accessibility of the educational procedure			
Questions	Notes		Comments
3.1. General services			
Are medical services and specialists accessible (if such a service is provided by the university)?	Yes	No	survey
Is psychological support available through the university?	Yes	No	Can be obtained from Disability Coordination Unit (DCU)
Are personnel trained on the particular needs of people with disabilities in the educational procedure?	Yes	No	Faculties
Are there sport teams and training targeted to people with disabilities?	Yes	No	University Administration
Are special curricula provided, if this is deemed necessary?	Yes	No	Faculties, Questionnaire
Does a volunteer team which assists students with disabilities in their everyday educational tasks exist?	Yes	No	DCU, Faculties, Questionnaire
If the University has a website is that accessible to people with disabilities?	Yes	No	
Is the University's website referring specifically to the provisions to students with disabilities? Is that specific site accessible?	Yes	No	University Administration, Faculties
Is all information concerning educational activities, books and other material provided in alternative forms? Is it available through the university's website and handed to students with disabilities in print or alternative formats (Braille, large print, easy to read texts, CDs, DVDs with sign language interpretation etc) or through e-mail?	Yes	No	University Administration, Faculties
Is special care taken by the university so that students with disabilities can successfully complete their practical exercise, if that is required by the school's curriculum? (This implies that an accessible working environment would be found by the university)	Yes	No	University Administration, Faculties
Is there an ongoing cooperation with university schools abroad so that students with disabilities can take part in students' exchange programs?	Yes	No	University Administration, Faculties, Questionnaire
Is unobstructed access to all forms of social activity occurring in the University's premises be ensured?	Yes	No	University Administration, Faculties, Questionnaire
Is there an ongoing cooperation with association of people with disabilities at local and national level?	Yes	No	DCU, Questionnaire
Is there a provision for the student with disabilities to be able to choose the pace of his/her studies?	Yes	No	Faculties, Questionnaire
A student with disabilities can follow courses through e-learning procedures?	Yes	No	Faculties, Questionnaire
Are assistance/guide dogs allowed? If entrance of assistance/guide dogs is allowed is there a provision for them (water supply etc.)?			

3.2. Attending lectures			
Students with sight problems			
Are books in Braille, large print or audible format provided? (depending on individual student's needs)	Yes	No	Faculties, Questionnaire
Are assisting books provided in the same format?	Yes	No	Faculties, Questionnaire
Is red and green ink avoided?	Yes	No	Faculties, Questionnaire
Is assisting Software/ hardware available to students with visual impairments?	Yes	No	Faculties, Questionnaire
Is there a possibility to use assistive technology in class?	Yes	No	Faculties, Questionnaire
Is there a Volunteer network responsible for creating audible forms of written material?	Yes	No	DCU, Questionnaire
Are audible announcements provided?	Yes	No	University Administration, Faculties, Questionnaire
Is there an accessible website, regularly updated in order to include all announcements in audible form?	Yes	No	University Administration, Faculties,
Is assistance in attending provided, if necessary (concerning the provision of notes during lectures)?	Yes	No	Faculties, Questionnaire
Is there a possibility of recording the lectures?	Yes	No	Faculties, Questionnaire
Are lecturers and general personnel trained on the particular needs of people with visual impairments?	Yes	No	Faculties, Questionnaire
Is there a request of feedback from students with visual impairments?	Yes	No	Faculties, Questionnaire
Students with hearing impairments			Faculties, Questionnaire
Is there lots of visual information provided in class?	Yes	No	
Is the visual info provided clear and not excessive?	Yes	No	
In case audiovisual media are used, do they have subtitles?	Yes	No	
Is there a possibility to use assistive technology in class?	Yes	No	
Is there assistive technology converting speech into written text available in class?	Yes	No	
Is there a sign language interpreter available at every lecture?	Yes	No	
Is the interpreter familiar with the specific terminology used at the lecture?	Yes	No	
Is there Assistance in attending provided if necessary?	Yes	No	
Is the lecturer easily visible?	Yes	No	
Is the lecturer's face always visible (to assist lip-reading)?	Yes	No	
Are lecturers and general personnel trained on the particular needs of people with hearing impairments?	Yes	No	

Are handouts provided to decrease the amount of writing a student has to do during the lecture?	Yes	No	
Is there a request of feedback from students with hearing impairments?	Yes	No	
Students with mobility impairments			Faculties, Questionnaire
Is there assistance provided to students with mobility impairments, if it is required?	Yes	No	
Is there a possibility to use assistive technology in class?	Yes	No	
Are handouts provided to decrease the amount of writing a student has to do during the lecture?	Yes	No	
Is there a request of feedback from students with mobility impairments?	Yes	No	
Students with dyslexia			Faculties, Questionnaire
Is at the beginning of the lecture an overview provided so that students know what to expect?	Yes	No	
Is a summary provided at the end of the lecture?	Yes	No	
Is there a possibility to record the lecture?	Yes	No	
Are handouts provided to decrease the amount of writing a student has to do during the lecture?	Yes	No	
Are handouts provided a few days prior to the lecture to allow for preparation?	Yes	No	
Is there allowance of time for students to read handouts if there are references to them during a lecture?	Yes	No	
Are multiple ways of presenting information: videos, slides, practical demonstrations, as well as talking through text, used?	Yes	No	
Are new topics and concepts obviously introduced?	Yes	No	
Are examples provided?	Yes	No	
Are there regular pauses to allow students to catch up?	Yes	No	
Is there a request of feedback from dyslexic students?	Yes	No	
Is the written material provided clear and concise?	Yes	No	
Is the written material provided printed in a clear and simple layout?	Yes	No	
Are patterned backgrounds avoided in written material?	Yes	No	
Is a clear font such as Arial used?	Yes	No	
Are too many font styles, which can prove confusing, used?	Yes	No	
Are paragraphs, headings and subheadings, bullet points, numbered lists etc used?	Yes	No	
Is the text highlited by using bold font, rather than underline or italics?	Yes	No	
Is the written material printed on colour paper, which may be easier for some dyslexic students to read?	Yes	No	
Is red and green ink avoided?	Yes	No	

Are alternative ways of presenting information as well as text — flow charts, diagrams, graphs etc used?	Yes	No	
3.3 Assessment of the student's knowledge of each subject			Faculties, Questionnaire
Students with visual impairments			Faculties, Questionnaire
Are they permitted to present essays and thesis in alternative formats?	Yes	No	
Is material in Braille, large print or audible form provided to them?	Yes	No	
Are students with visual impairments permitted to undergo formal assessment using adaptive technology in a separate room using an amanuensis or reader with the addition of extra time.	Yes	No	
Are students allowed to replace written exams and essays with oral exams?	Yes	No	
Are exam sheets adapted if this is required from students with visual impairments?	Yes	No	
Students with hearing impairments			Faculties, Questionnaire
Is there overly complicated language used in the provided material?	Yes	No	
Is adaptation of terminology with the help of a sign language translator carried out?	Yes	No	
Are students permitted to have the examination paper 'overwritten' to modify the carrier language?	Yes	No	
Are students permitted to have questions communicated in sign language?	Yes	No	
Is a sign language translator always available?	Yes	No	
Are the examination papers provided clear and simply laid out?	Yes	No	
Is an examination paper that does not require extensive use of written language provided (eg. use of multiple choice questionnaires)?	Yes	No	
Are students permitted to have questions rephrased?	Yes	No	
Are students permitted to have questions communicated by lip speaking?	Yes	No	
Are students permitted to take the exams in a separate room, if required?	Yes	No	
Are students permitted to have extra time to complete the examination?	Yes	No	
Students who have a mobility impairment			Faculties, Questionnaire
Are students allowed to use a reader or amanuensis?	Yes	No	
Are students allowed to use adaptive technology?	Yes	No	

Are students provided with alternatively presented papers, if requested (eg. on audiotape or suitably equipped computer)?	Yes	No	
Are students allowed to sit the exam in a separate room?	Yes	No	
Are students permitted to have extra time to complete the examination?	Yes	No	
Students who have dyslexia			Faculties, Questionnaire
Are questions worded in clear concise language?	Yes	No	
Are students provided with a clear hand in date for assignments?	Yes	No	
Are students allowed to use electronic spellcheckers or dictionaries?	Yes	No	
Can students have questions provided on audiotape?	Yes	No	
Are students allowed to use an amanuensis or reader?	Yes	No	
Are assessment papers provided to students with dyslexia in Arial 12pt, with 1.5 spacing between lines and with a ragged right hand margin?	Yes	No	
Students who have a disability not listed above			Faculties, Questionnaire
Is there flexibility in the assessment process?	Yes	No	

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